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REVELATIONS

ON

C H O L E R A ;

OR,

ITS CAUSES AND CURE.

BY SAMUEL DICKSON, M.D.,

FORMERLY A MEDICAL OFFICER ON THE STAFF IN INDIA.

AUTHOR OF THE FALLACIES OF THE FACULTY
THE UNITY OF DISEASE; DISEASES OF INDIA;
AND FOUNDER OF THE CHRONO-THERMAL
SYSTEM OF MEDICINE.

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INTRODUCTION.

CHRONO-THERMALISM.—ITS DOCTRINE OF HEALTH,
DISEASE, RESTORATION, AND REMEDIES.

Dr. Dickson's work called "THE FALLACIES OF THE FACULTY, explaining the Chrono-thermal system of medicine, and proving the so called science of medicine, as taught in the schools, and practised on the public, to be little better than a random network of guesses, has passed through five editions in this country, as many in the United States of America, and has been translated into French, German and Swedish. The book and the author have been alternately abused, plagiarised and misrepresented,* and the system itself scouted as

* The *Report from the Select Committee on MEDICAL REGISTRATION*, ordered by the House of Commons to be printed, 16th July, 1847, contains the following, among other "evidence":—

Veneris 18o die Junii, 1847.

"The RIGHT HONOURABLE T. B. MACAULAY in the Chair.

"EDWARD JAMES SEYMOUR, M.D., called in and examined—

"1359. Are you one of the *Censors* of the College?—I have been Senior Censor and Junior Censor.

"1360. Are you not aware that many persons are calling themselves physicians, and are practising as physicians,

quaekery, and without aeknowledgment adopted and praetised.

A wide amelioration of the practiee of physie has resulted from such unaeknowledged use of Dr. Diekson's diseoveries, but still the probability is

who have *no other* authority for so doing than the diploma of *a foreign* university ?—I know of no such persons but the homœopathists ; and there is a *Chrono-thermal man*, or something of the kind, but I am not personally acquainted with that case."

Not personally acquainted with that case ! Why, then, Dr. Edward James Seymour, did you volunteer your "evidence" upon it ? You did it to sneer down a Medical Reformer. Yes, you deliberately went out of your way to slander a man whose torch of truth had set the old walls of your College in a blaze. You qualified your falsehood, to be sure, with the quibble that you were "not personally acquainted with that case." Turn to the *London Medical Directory*—Dr. Seymour,—that book is doubtless on the table of every College *Censor*—and blush, if blush you can, when you read there the true qualifications of the individual you have been pleased to call "a *chrono-thermal man*," with no other authority to practice than "the diploma of a *foreign university*." For the reader's benefit, and Dr. Dickson's justification, we may as well state them here :—

Dickson, Samuel, 28, Bolton Street, Piccadilly, Physician.—*Qualification*, M.D., *Glasgow*, 1833 ; Member of the Royal College of Surgeons of *Edinburgh*, 1825 ; formerly a Medical Officer in the British Army ; author of—1. "A Treatise on the Diseases of India ;" 2. "Fallacy of the Art of Physic as taught in the Schools ;" 3. "Unity of Disease ;" 4. "Fallacies of the Faculty, with the Principles of the Chrono-thermal System of Medicine ;" contributor to the "Lancet" of a Paper on the Asiatic Cholera, and of various other Papers to the "Lancet" and "Medical Times."

that the great majority of people have never heard of Chrono-thermalism, or at best have only an indistinct notion, derived perhaps from their doetors; that it is some new and dangerous quaekery, set up at random by some one who has never had a professional edueation, and who knows nothing of "the ills that flesh is heir to," and all the long list of specifies and remedies so abundantly set forth for them in the pharmaceopœias. It is neeessary, therefore, to state, that Dr. Diekson was regularly edueated in the schools of anatomy as a surgeon, and as regularly took his diploma as a physieian,—that he praetised both branchees of the profession, as an army surgeon, serving on the medial staff in India, and administered for years the usual routine remedies for the usual diseases, with the usual sueeess ; and it was preeisely this sueeess, with its long continuance of diseases, the fewness and slowness of its complete reeoveries, and the number of its deaths, that continually forced upon him the question—*Does medicine as taught in the schools deserve the name of a science?* And, after long and careful observation, he was led to the eonelusion, that the teaehing of the schools is not a scienee, that it too often takes the partial results of disease for the disease itself, overlooks the most important phenomena of vitality and mortality, and takes some single result of a drug as a proof of its sovereign effieaey.

There are four classes of books, in view of which any quite unmedical inquirer might find himself utterly puzzled. First, the nosologies, or lists of diseases; second, the pharmaceopœias, or lists of remedies; third, the medical directories, or lists of men diplomaed as skilled practitioners of the mysteries of medicine; and fourth, the registered returns of mortality. Let any one look over these returns from week to week, or year to year, either for particular districts, or the whole country, note how large the number of deaths is between the ages of 15 and 60, a period embracing the very flower of youth and vigour of the prime. Turn, then, to the causes of all these deaths, every one of the diseases set down has its description in the nosology, its remedy in the pharmaceopœia, and every case had its physician; few of the deaths are set down as sudden, there was time enough for duly-administered remedies to be effectual, and force of life enough, with some little help to have shaken off the disease. With these facts before them, it is the duty of medical men to be somewhat cautious how they arrogate to themselves the true science of healing, and to investigate, immediately it is brought before them, any new theory of disease and remedies; and it is no less the duty of the unprofessional public, to read and learn something for themselves, that in their own knowledge they may have some safe-

guard against what often may fairly enough be called the routine quaekery of medieval attendants. Chrono-thermalism is here, but it is no quaekery. Of all systems for the treatment of disease, the chrono-thermal requires the greatest skill and most observant attention on the part of the physician. The name ehrono-thermal is made up of two Greek words, whieh literally mean, time and heat, and is suffieiently expressive of Dr. Diekson's diseovery, that all the vital movements in health are periodic, have alternations of ccrtain rates of motion, cer-
tain periods of aetion and rest, eertain lives of temperature and nervous energy,—that every disease is a disturbancee of the order or rate of the natural or healthful movements, and consequent temperature, and rate of wear and tear of the body,—that every such disturbancee or disease is intermittent, having, like ague, its cold or lowest stage, its hot or highest stage, and its stage of rest, in which the vital movements and temperature are the same as in health, or make the nearest appraeh to it. Whatever amount of disturbancee there may be, there is a continual effort amongst the vital forees, to get baek to the habitual or healthful alternations and rate of motion and tem-
perature; and when the vital organism is suffi-
ciently strong to resist the disturbancee, so that no vital organ is consumed or mortally wounded in the struggle, this bismedicatrix naturæ, or healing

force of nature, will overcome the disease, and of itself restore the periodicity of health. In some diseases, as measles, small-pox, scarlatina, typhus, and other admitted fevers, the precise number of days, until the fever will yield to the natural efforts to restore the state of health, is known and given in the medical books; and it certainly says very little for the orthodox remedial measures, that most of these diseases run their stated time in spite of the remedies. The chrono-thermal remedies are such as aid the restoring force of nature. It is perfectly well known, that quinine, hydrocyanic acid, iron, silver, copper, strychnia, musk, assafetida, balerian, colchicum, suitz, bismuth, turpentine, opium, and arsenic, to which should be added the hydropathic treatment, which, after all, is but a portion of Dr. Dickson's doctrine, exercise a more or less rapid and powerful effect upon the rate of vital motion and temperature. Whatever the condition may be, the effect of these agents is to disturb it, and the more powerful of them do so almost instantaneously. They require, however, to be administered with the most watchful attention to the stage, or fit of fever, in which the patient may be, and in the first instance, the very smallest doses that can produce any effect, until their effect upon that particular patient is clearly seen; for all these remedies have a duplex action, and we have yet to learn

the evidence that may enable us to determine in every case with absolute certainty beforehand, what their action will be. The chrono-thermal remedy at the wrong period, exasperates that particular fit, but given at the right time, it assuages and shortens its duration. There is no such thing under chrono-thermal treatment as a fever running through its stated number of days. During every fit of excited action and increased temperature, the remedy is such as diminishes that action, lowers the temperature, and brings on, sooner than would occur in the fits of the disease itself, the period of rest; so also the stage of diminished action is broken in upon, both extreme periods are shortened, the alternation of disturbance is itself disturbed, and the natural force, by the lengthened periods of rest, aided in its struggle to restore the healthful alternations and balance of vital motions and temperature. For more full explanation of Dr. Dickson's discoveries, theory, and practice, we must refer the reader to "THE FALLACIES OF THE FACULTY."

But it is essential even here to call attention to the fact, first urged upon the public by Dr. Dickson, that in every form of disease, bleeding lessens the natural restorative force, diminishes the vital power, is, in fact, a wilful abstraction of its very essence from the system. It makes the action of remedies comparatively weak, recovery

always more slow, less certain, and sometimes impossible. On this subject, Dr. Diekson says, "I
" have not always had this horror of blood-letting.
" In many instances, I have formerly used the
" lancet, where a cure, in my present state of
" knowledge, would have been effected without:
" but this was in my novitiate,—influenced by
" others, and without sufficient or correct data to
" think for myself. In the army hospitals, I had
" an opportunity of studying disease, both at home
" and abroad. There I saw the tall fine soldier, on
" his first admission, bled to relieve some symp-
" tom, or to fainting; primary symptoms were got
" over by such measures, but once having entered
" the hospital walls, I found that soldier's face be-
" come familiar to me. *Seldom did his pale coun-*
" *tenance recover its former healthy character.* He
" became the victim of consumption, dysentery, or
" dropsy; his constitution was broken by the first
" deplctory measures to which he had been sub-
" jected.

" Such instances, too numerous to escape my
" observation, naturally led me to ask,—Can this
" be the proper practice? It was assuredly the
" practice of others—of all, could all be wrong?
" Reflection taught me that men seldom act for
" themselves; but take for the most part a tone-
" or bias from some individual master. I had the
" resolution to act for myself, and my conviction,

“ gained from much and extensive experience, is
“ that all diseases may not only be successfully
“ treated without loss of blood; but that blood-
“ letting, however put in practice, even where it
“ gives a temporary relief, almost invariably injures
“ the general health of the patient.”

“ Were I,” says Dr. Gully, writing ten years subsequently, “ to detail the instances that have
“ come before me at Malvern, wherein a series
“ of nervous and other symptoms have dated
“ through years, from in some cases, a single large
“ bleeding, the recital would appal many who
“ look upon that operation as very simple and very
“ innocent, because very commonly practised.”—
And again, Dr. Diekson says, “ the long shiver
“ of the severest ague, the burning fever, the fatal
“ lock-jaw, the vomiting, eramps and *suffocation of*
“ *Cholera*, the spasm of asthma and epilepsy,
“ the pains of rheumatism, the palpitating and
“ tumultuous heart, the most settled melancholy
“ and madness, dysentery, consumption, and every
“ species of palsy have I traced to loss of blood.”
Fortunately for humanity, this denunciation of the
system of letting out the life-blood, has not been
in vain. Far fewer now are bled into weakness,
disease or death.

On the approach of such a disease as Cholera, it is
not possible too strongly to impress upon the public,
that any bleeding, no matter under what pretence,

increases to an extreme degree the liability to Cholera, and may even suddenly bring on an attack in its severest form. It may also be as well to remind practitioners of medicine, that every immediate purpose which in any case can be answered by blood-letting, is attainable by the harmless method of tying a wet bandage tightly round the arms or legs. One further fact as to blood-letting, it may be worth while to mention, that in a given quantity of blood, the first, taken from a healthy subject, there are a certain number of red globules; in the next bleeding, even long afterwards, there are found fewer of these globules, and even years after if the bleeding have been heavy or frequent, the original proportion of these red globules is not restored. It may be that we have not yet discovered the essential use of these deep dyed particles in the blood, whether they be a cause of motion and life in the blood itself, whether they are essentially connected with its electrical condition, or with the vital energy of the brain and nerves; but we do know that they are slow and difficult, if not impossible, of restoration, and that just as difficult is it to restore energy, tone, and high vitality to a system from which they have been abstracted. We again, therefore, urge upon our readers, that whatever other absurdity they may submit to, they set themselves resolutely against losing by leech or lancet a single drop of

blood, for the blood is the life, and on it depends the power to resist disease and to recover from its attacks.

There seems little reason to doubt that before any very long period, the same conditions will be present here as have given rise to Cholera in India and on the Continent of Europe; as however, the majority are not attacked even in those places where the epidemic is most prevalent, it follows that all might escape its influence, if they could be put in the same condition of resistance. It is perfectly notorious, that comparatively few of those who are in vigorous health, or who have opportunities of occasionally breathing fresh country air, or who live in good houses, and are not over worked, nor over nor under fed, nor crowded together in sleeping apartments, nor addicted to intemperance, are attacked by Cholera. If a deficiency of electricity in the earth or atmosphere, or any disturbance of the currents of that all-pervading influence, bring on Cholera, by depriving us of our vital electricity, and so paralyzing the nerves that give life to the lungs, stomach, and other vital viscera, it is still certain, that by far the greater number are enabled to withstand the deprivation or disturbance whatever it may be. Instead, therefore, of perpetual apprehension at the approach or near neighbourhood of Cholera, there should be the most active exertion made by every one to get into the best

condition to resist it; and they must be very few indeed who cannot succeed in ensuring their own safety, if they will take the trouble and practise sufficient self-denial.

Of all protectives against Cholera, the most effectual is a clean skin, which fortunately the number of private baths, and the public baths and washhouses enable every one to have at no great cost and with very little trouble.

To preserve the skin in such cleanliness, assures its perfect tone and health; it is not sufficient to bathe occasionally, or even once a week, the entire person should be completely washed every day, and that for the very reason that makes most persons think it unnecessary, because we are so closely covered by our clothes. On that very account the pores of the skin which may be closed the vital safety valves are clogged by the deposits of the insensible perspiration. Doubtless many persons will be utterly astonished at the idea of having to wash all over every day. For them it is quite trouble enough to wash face, hands and as much else as is seen above their dress. It is better, however, to take this daily trouble than to be trembling from day to day at the thoughts of Cholera. And after all, this daily purification of the skin is no such difficult matter. The best and easiest way of accomplishing it is to have a coarse sheet partially wrung out of cold water, thrown

over the person, and to rub not with but over the sheet briskly for five or six minutes, and then to rub dry with as coarse a sheet or towel as the skin can comfortably bear. Those who adopt this practice, or who even rub all over every morning or night with a well wet towel, will soon learn from their sensations of increased vigour, spirits and general comfort, that even so simple a process may be a powerful resistant to disease. Those who fancy that it would be impossible for them to bear the touch of cold water, can dip the sheet or towel in warm water, but if they use a warm sheet they should have a dry one thrown over them along with the wet one, and be rubbed over both, that they may not feel chilled by the rapid evaporation of the warm water.

Next in importance to keeping the skin clean, is occasional change of air, which the railways make sufficiently easy to the great majority. So long as it pleases the authorities to make what the *Times* most justly calls a churned stagnant pool of the Thames, and to poison what should be a source of health, by pouring the whole drainage of the million population of London into the river, we cannot recommend the metropolitan population to seek the invigoration of pure air upon the Thames.

If the working classes object, that either of these measures of protection are too expensive for them, we have but to reply, that for the most part the

sums spent in gin-palaees and public-houses in increasing the tendency to Cholera would be more than sufficient to accomplish both the above powerful means of prevention. It is also important to avoid crowded ill-ventilated sleeping apartments, and it should be borne in mind that night is the period of greatest liability to attacks of Cholera. There can be no doubt that, were the system of model lodging-houses so extended as its complete success so far proves it might be, the victims of Cholera would be greatly diminished, merely by the increased comfort, healthfulness, and cheerfulness of a residence in such apartments.

It may be taken as a proved fact, that Cholera is not caused by any pestilent exhalation ; it does not rise from choked-up sewers or cesspools, or open stagnant drains, or the churning of a city's filth up and down its rivers ; but each and all of these debilitate, and dispirit, and weaken the power of resistance to disease. Under such circumstances, the healthful alternations of motion and temperature are in the condition most easy of disturbance, and most liable to be upset by the conditions, whatever they may be, that give rise to the epidemic of the day. It becomes, therefore, the public duty of every individual, to see that Government and the various local authorities do not sleep over sanitary measures, and that no pretence of vested rights be allowed to stand in the way of the prompt re-

moval of every cause of predisposition to disease. The City authorities are no more entitled to continue any festering cause of pestilence, than men have a right to lurk behind a hedge with some deadly weapon to be discharged on passers by, or to poison the daily drink of a whole people.

In conclusion, it may be well to remind our readers, that although in some instances attacks of Cholera seem to come on with the utmost severity, almost instantaneously, and without any premonitory symptoms ; yet, in by far the majority of cases, the patients are disordered in the stomach and bowels, and are out of spirits and oppressed with a feeling of lassitude and uneasiness for some days. In every such case, the best advice is, to avoid *quack medicines* and self-doctoring ; send for a medical man at once, and trust yourself entirely to his care. In cases, however, where premonitory symptoms have either not been present, or have been overlooked, and the attack of Cholera is sudden and severe, where there is no difficulty of breathing, it can do no harm, and may very probably afford considerable relief to foment the stomach, with flannels wrung as dry as possible out of hot water.*

* The best mode of administering these fomentations is to lay a folded blanket across the bed, under the patient's back, to pour water nearly boiling on the flannels, and wring them in a towel, and having laid them over the

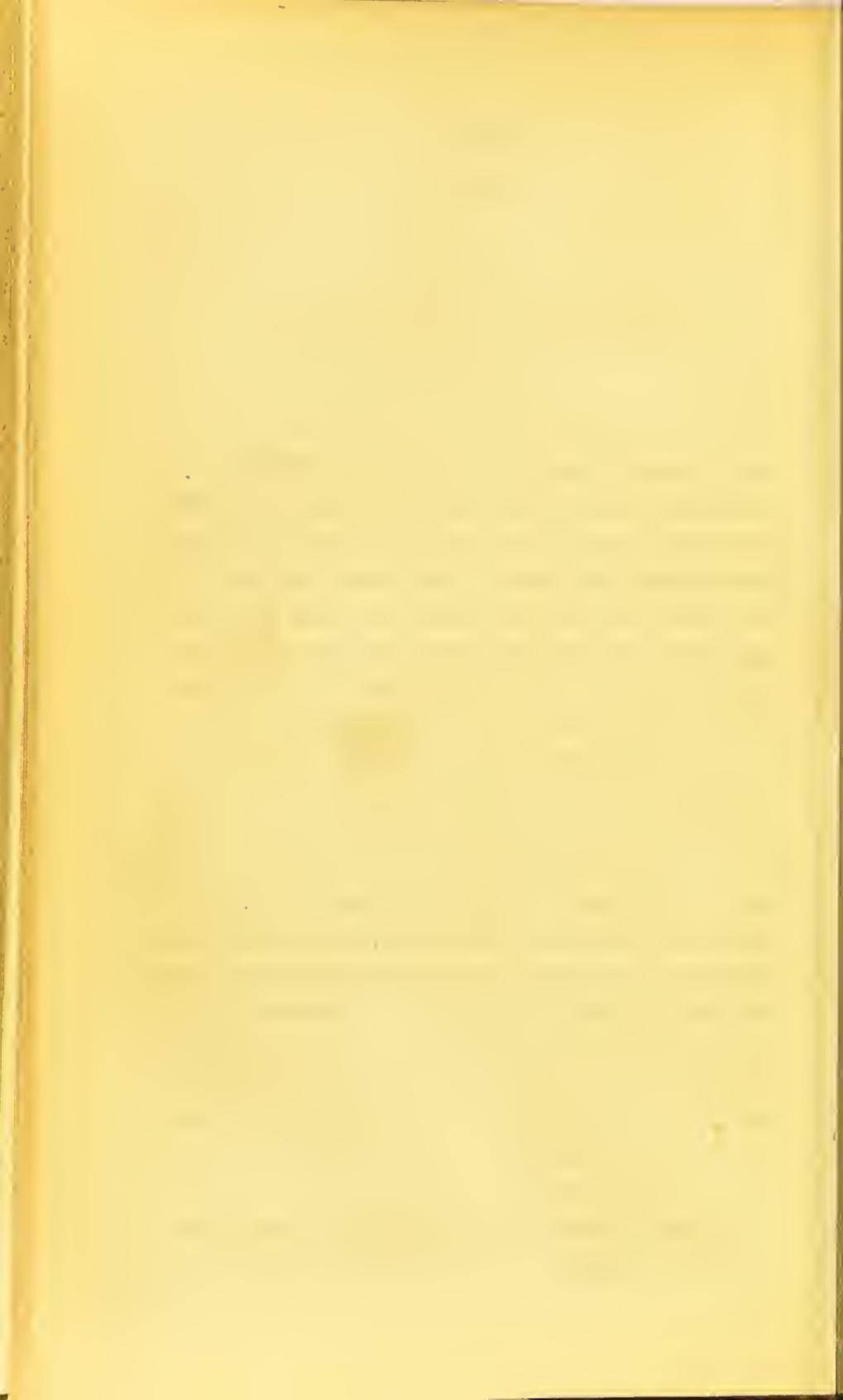
In this milder form of Cholera, the cramps, however severe, are the reverse of dangerous. They are, in fact, the struggle of nature to furnish the Brain with an increase of vitality for the restoration of the paralyzed nerves. Dr. Wardross points out that, in his ingenious work on Diseases of the Heart, spasms have a purely mechanical action. By constricting the great muscles of the limbs, they constrict also their veins and arteries, stop the supply of blood to and from them, diminish the quantity of venous, and increase that of arterial blood in the heart, and excite it to greater activity. Thus a larger supply of arterial or vitalized blood, and the power of generating more nervous energy, are furnished to the brain. The cramp, therefore, is an effort of the healing power of nature. We do not yet know how the paralysis of any important nerve produces spasms, but we do know that the tendency of these spasms is to enable the Brain to revitalize the nerve.

In Suffocative Cholera, unless air be artificially furnished to the lungs, the cramps increase the danger. As no air can be inhaled, there is no vitalised blood in either the heart or arteries, the increased quantity sent to the brain is but an increase of pressure, that brings rapidly on the stomach, to lay the blanket tightly over, and pull up the bed-clothes. The flannels should be changed about every six or eight minutes.

heavy stupor of approaching death. In Suffocative Cholera, therefore, it is important to stop the spasms, and the external application of chloroform for the purpose deserves a trial.* The great point however, the real resource for the preservation of life, is to get, as Dr. Diekson has most forcibly urged, air into the lungs. Do that and the mortalism of Suffocative Cholera is overcome, you gain time for the action of remedies, you may try the effect of a galvanic current along the course of the gastric branch of the paralyzed nerve, and there will, at all events, be intervals of vitality for the administration of the more active chrono-thermal remedies.

It is right to state that Dr. Diekson is in no way accountable for this introduction.—ED.

* The hot fomentation mentioned above should also be used in Suffocative Cholera, but not for any long time, and in every case it would be well to place a folded handkerchief or linen bandage wrung out of cold water round the throat, covering the wet bandage with one of flannel, sufficiently tight to exclude the air, and changing it every ten or fifteen minutes, and a similar bandage should be tightly folded round the stomach.



REVELATIONS ON CHOLERA.

THE *Cholera* is coming to England!—What is the meaning of this ery?—What is this Cholera—this word which carries such fearful import to the ears of the world at large? The term Cholera is a derivative from the Greek words *χολή*, *bile*, and *πεύω*, *I flow*. It conveys, then, not the least information as to the nature of a disease, where neither the abundance nor paucity of that secretion—its vitiation or variation—is an element entering into the danger to life which the phenomena called Cholera involve. To know Cholera, you must know every wrong movement of the body. To describe Cholera, you must describe every purely functional disease to which humanity is liable; for, with the single exception of structural change, for the development of which the complaint is too brief in its duration, there is not a possible *morbid* movement which may not occur in its course! Its study is consequently pregnant with instruction, equally to the inquiring physiologist, and to the lover of pathological research.

Hitherto the morbid anatomists have been almost the sole authorities on Cholera. Confining their

observations to the *post mortem* changes which the Brain exhibits on dissection, certain of them suppose the disorder to consist in a peculiar inflammation of that organ; others, looking to the dark and vascular state of the stomach and bowels, believe inflammation of those parts to be the origin of every symptom and change: not a few imagine the liver to be the chief seat of mischief, from the congestion which it in general betrays; while the state of the bile, its presence or absence in the alimentary canal, has each in its turn been stigmatised as the immediate cause of the disease. There are not wanting some, however, who believe that the *post mortem* appearances, which their brethren look upon as causes, are in reality the mere effects or results of nervous derangement; forming their opinion on the rapid succession of the symptoms in life, however difficult they may find it to connect them with the discoveries made after death by the scalpel.

From this discrepancy of opinion on the very nature of the disorder, is it wonderful that the practitioner should be equally unsettled? Bleeding, blistering, and leeching, in rapid succession, if not simultaneously, have been had recourse to by those who ascribe to the disease an inflammatory origin. Emetics and purgatives, with calomel *usque ad nauseum*, form the sheet-anchor of all who look upon the state of the liver or the bile as its proximate cause; while the absence of this secretion in the ejected matters, has furnished an apology to

others to preseribe the bile of the ox, and having prescribed it, they have not failed to vaunt its virtues in the disorder!—Those who see in Cholera a rapid exhaustion of the powers of life, naturally turn with eontempt from such modes of treatment, and fly, too exelusively perhaps, to stimulants and eordials. What a pieture of the medieval scienee of the nineteenth eentury!

The correectness of the present designation of the disease, we do not mean further to diseuss; it is more desirable to ascertain the extreme symptoms whieh all unite in ealling “CHOLERA,” and to be aware how far these differ in their essentials, from another form of disease whieh may have received the same denomination. An individual with flushed face, full bounding pulse, and hot skin, is in a totally different state from one labouring under difficult breathing and oppression at the chest, pallid withal, and pulseless, though there should be present in both a multitude of other symptoms perfectly identieal. Both of these states having been produced by the same epidemie influencee, reeeive the same name; but they have this difference, that the *difficult breathing* of the one makes the very danger from whieh the other, enjoying an immunity from this symptom, is free. The first is Cholera *mitior*, analogous to English Cholera; the seeond is Cholera *asphyxia*, or *Suffocative Cholera*.

We shall first eonsider that form of the disease whieh, from the early diffieulty of breathing, has been denominated Cholera Asphyxia.

CHOLERA ASPHYXIA.

Mr. Orton has well described the symptoms :—
“ An extraordinary depression of spirits, and
“ general uneasiness, come on, attended by *tremor*
“ and sense of debility, giddiness and headach ;
“ and occasionally ringing in the ears is also felt,
“ particularly on rising from the recumbent posi-
“ tion, or making any sudden movement : pains
“ resembling those which attend the accession of
“ fever, are frequently felt in the limbs. The bowels
“ are gripeo occasionally, and natural *loose stools*
“ occur. Nausea comes on. The circulation and
“ *temperature* of the body are variously disturbed ;
“ but most commonly the pulse is accelerated and
“ weakened. The skin is moist, and *colder* than
“ usual to the hand of another. In general, how-
“ ever, the severer affections quickly set in. Acute
“ griping is felt in the bowels, the stools become
“ extremely frequent and watery, and change to a
“ grayish-white colour, so as exactly to resemble
“ the congee or barley-water. *Vomiting* comes
“ on ; and, after the common contents of the
“ stomach, a clear watery fluid, interspersed with
“ flakes of mucus, is discharged. Copious sweat
“ breaks out, and the anxiety and debility rapidly
“ increase. The countenance assumes a very pecu-
“ liar appearance, by which alone the disease may
“ generally be distinguished. This is so remark-
“ able, as occasionally to render servants recog-
“ nized with difficulty by their masters, even in the

“ early stages of the disease. It is usually during
“ a fit of vomiting that *spasms* of the museles are
“ first felt. They affect oeeasionally the whole of
“ the museles of voluntary motion, but particueularly
“ those of the legs and feet. The *respiration*, from
“ the first acession, is observed to be *hurried and
“ oppressed*, and is frequently complained of. As
“ the disease inereases in violence, the colour of
“ the whole surfacee changes to a *livid hue*, particu-
“ larly round the eyes and at the extremities. The
“ surfacee is bathed in *cold sweats*; the hands and
“ feet, and afterwards the whole body, rapidly grow
“ eold.”—“ From the first setting in of the disease
“ an extreme *thirst* invariably attends; and, not-
“ withstanding the eoldness of the body, there is
“ an ardent longing for great quantities of eold
“ water, whieh, however, though gratefully and
“ eagerly reeeived, frequently affords no relief to
“ the morbid sensation.”—“ Great *oppression and
“ sense of anxiety* are also referred to the præ-
“ cordia. The *urine*, when it does appear in the
“ early stage, is pale and watery; but, under the
“ existence of the severer symptoms, that *secretion*,
“ as well as that of *bile*, is completely *suppressed*.
“ The tongue is natural at first, but in the course
“ of the disease it becomes furred and defieient of
“ moisture; and dryness of the mouth and throat
“ is very generally eomplained of. The hands are
“ sodden with eold sweats, shrivelled and wrinkled
“ like those of a washer-woman after a day’s labour,
“ and frequently of a dark blue colour. There is

" an extreme restlessness and anxiety, which prevent his remaining an instant in the same position."

" —It is gradually relieved or removed by stupor; and though these symptoms are of so opposite a nature, they are frequently present in a very considerable degree at the same time. After an uncertain continuance of this state, to which I cannot with truth apply a term of greater precision than a few hours, a remarkable change takes place."—"The spasms, the vomiting, and purging, usually cease about the same time; whatever is taken into the stomach is retained, even in large quantity, and elysters not rejected as formerly."—"The powers of life continue rapidly to fail. The pulse becomes quite lost at the wrist, and even at the humerus. The pulsation of the heart itself is felt extremely feeble. The eye is sunk back, and fixed in the socket; the cornea becomes dull and glassy."—"In the attempts to sleep, the eye is half-open occasionally, the pupil is scarcely covered; deafness, preceded or accompanied by tinnitus aurium, is very common in this stage; false vision, blindness, and dilated pupil, are equally so; speech becomes difficult, and the voice grows hoarse, hollow, and scarcely intelligible, or is entirely lost. The breath has been observed to be cold, as if it came out of a lump of clay."*

I have given, then, the general features of the disease, when attended with suffocative symptoms

* Orton on the Epidemic Cholera of India.

—the symptoms of that form of Cholera termed Cholera Asphyxia: many of these, however, in individual cases, are altogether wanting. The absence of bile in the ejected fluids is a common symptom; but I have known this secretion continue to the last. The congee or rice-water like appearance of the ejections, then, is not an essential symptom; and, from its being often observed in that form of Cholera in which there is no difficulty in the breathing, and consequently little danger to the patient, I pass it by as a symptom of no importance in the treatment. In both forms of the disorder, spasm may be either present or absent. I have seen many cases of the disease in which neither spasm, vomiting, nor purging, were symptoms. The *sinking, difficulty in breathing and loss of voice*, are the essential symptoms of Suffocative Cholera—of Cholera Asphyxia.

What is the immediate cause of those most terrible symptoms? How are they produced? They are the direct result of a loss of the Brain's influence over the *pneumo-gastric* nerves,—those nerves that supply the stomach, lungs, and vocal organs. Whatever will, directly or indirectly, diminish the Brain's energy over those nerves, will produce the identical symptoms of Suffocative Cholera. The passion of terror will do it. Any local injury that may give a shock to the Brain will do it. Loss of blood will do it. The direct artificial paralysis of the nerves in question, will do it! And, first, of Terror, as a cause.

Will the reader pardon me for referring to the dog for an example. In the outward voyage to India we experienced a severe hurricane, soon after doubling the Cape. The fierce howling of the wind, the creaking of the masts and the cordage, the wild rush of the sea over the deck, the deep gloom intermitting with the occasional gleam of lightning, were terrific. Thirteen of a pack of thirty dogs which we had on board, were the following day found labouring under spasms, asphyxia, and vomiting. They all died in a few hours. In this instance, the people of the ship to a man, attributed the disease to terror.

But can the symptoms of Cholera Asphyxia be produced by local injury? Every surgeon of experience has occasionally seen faint, ague, fever, rheumatism, &c., from simply passing a bougie into the urethra. That this very cause will produce Suffocative Cholera,—call it what you will, the disease has every essential symptom of the worst form of the epidemic,—the following case is an evidence:

“ Mr. L——, about 27 years of age, had a bougie passed at two p. m. on Tuesday the 6th of September. At six o’clock in the evening a sense of coldness and slight nausea came on, but did not amount to actual faintness. He took a dose of salts of his own accord, which acted on his bowels, and produced vomiting; but he passed an uncomfortable night. All day on Wednesday the patient was ill, but was not seen by any

“ medical man. On Thursday morning Mr. Thomas was called to him, who found him in a very strange condition. No pulse could be felt, the extremities were cold, the fingers blue, the breathing short and very laborious; yet the patient was sensible, though somewhat deaf, and confused in his ideas. Some diffusible stimuli were exhibited; and on Thursday night, at ten o’clock, the writer of this article joined Mr. Thomas in consultation. A very particular examination was now made of the arterial system. A weak fluttering and indistinct movement was felt in the region of the heart, when the patient lay over on that side. The chest sounded badly in every part. No respiratory murmur could be heard through the stethoscope; but the situation was unfavourable for auscultation, being in one of the most noisy streets of the metropolis. No pulsation could be felt in the descending aorta, the inguinal, earotids, radials, or, in short, in any artery of the body. The examination was repeatedly made, and with the utmost care. The patient was sensible, but restless, and complained of an indescribable oppression and sense of anxiety in his chest. He was thirsty, the tongue dry and furred, the countenance clouded, the extremities cold and pale, the nails blue, the breathing very short and somewhat laborious. Bottles of hot water were applied to the extremities, and diffusible stimuli of the most powerful kind were exhibited internally, though with some difficulty,

" as the *stomach was irritable*. [In other words, he
" had vomiting.] In this condition he remained
" the whole of Thursday night, and was found on
" Friday morning exhibiting precisely the same
" phenomena. The stimulation, with frictions,
" fomentations, &c., were continued. At five,
" P. M., the medical attendants again met, but not
" the slightest mark of arterial action could be felt
" in any tangible artery. He had not slept any
" in the night or during the day. The tongue was
" more loaded; there was some intellectual aber-
" ration, and the muscular debility was extreme.
" He could hardly turn himself in bed, and when
" his head was raised he was threatened with syn-
" copa. A stimulating salt-water bath was ordered
" at ten o'clock at night, and in the meantime the
" stimulation was continued. This day he took
" twenty grains of calomel with compound extract
" of colocynth, and the bowels were well elarg'd.
" At half-past ten at night, while preparing to
" place the patient in a warm bath, a slight pulsa-
" tory motion could be felt in the carotids; and
" shortly afterwards, while in the bath, the radial
" arteries began to pulsate though very feebly.
" From this time a gradual and almost imper-
" ceptible improvement took place in the arterial
" action and animal temperature, till both were
" completely developed. The *freedom of breathing*
" corresponded in the *improvement of the function*
" of the circulation, and, in two days from the
" appearance of arterial pulsation, a smart febrile

" reaction was set up."—*Medico-Chirurg. Review*, New Series, No. viii. p. 102.

I have said that Cholera Asphyxia, like every other form of the disease, may take place from *loss of blood*. The reader will judge whether, while describing the effects of flooding in the female, Dr. Blundell has or has not described its essential features :—" When blood," says Dr. Blundell, " comes away in large quantities from the *uterus*, " alarming symptoms soon begin to appear : the " tongue, lips, and cheek, become pale and ghastly; " the pulse frequent, (140, 150, or 160,) small, and " perhaps intermittent, disappearing in the wrist " for a few seconds, or even for a few minutes, " nay, for an hour or more, and then returning ; " and there is weariness and weight in the limbs, " and *fainting*, and *sighing*, and *vomiting*. Now all " these symptoms you may throw together, under " the head of symptoms alarming in a high degree, " but which are not to be looked upon as indications of immediate and almost certain dissolution. " When the patient is about to die in consequence " of the blood she has lost, in addition to the " preceding symptoms, which may have been *per- eursory*, the following also frequently occur :— " The whole body becomes damp and chilly, the " *very breath becoming cool*, as you may feel some- " times by putting the back of the hand a little " before the mouth—and the pulse intermits very " much, or perhaps it is permanently impereceptible " in the wrist ; which it may be for minutes, say,

“ for half an hour, an hour, or even longer than
“ this, before the dissolution takes place ; and soon
“ the patient becomes *restless, and wishes to alter*
“ *her position* ; and no persuasions induce her to
“ be quiet—relief flies before her—she changes her
“ position, and again she changes, but remains
“ uneasy still ; and now the irritability and ex-
“ haustive oppression continually augmenting, she
“ gets at last into a state of *involuntary jactitation*,
“ throwing her limbs about on the bed ; and these
“ are speedily followed by a cessation of the cardiae
“ and pulmonary actions.”—*Lancet.*

Mr. John Bell, who had the eye as well as the hand of a painter, will give the finish to this description of loss of blood :—“ The countenance
“ assumes, as in asphyxia, a livid hue, from want of
“ circulation ; the face becomes all at once deadly
“ pale ; the *circle round the eyes is livid* ; the *lips*
“ are *black* ; and the extremities are cold. The
“ patient revives, and faints again. With a low
“ and quivering pulse *he is sick*, and his *voice is*
“ *lost*. The countenance is not of a transparent
“ paleness, but of that *clayey and leaden* colour
“ which the painter represents in assassination and
“ battles.” The surgeons of the Indian Army, who
know Cholera Asphyxia at a glance, will testify
that this description is a perfect picture of that
disease. Spasm, suppression of urine, blindness,
with eraving thirst, are all prominent symptoms of
loss of blood. In experiments upon dogs, I have
often seen watery dejections produced by bleeding.

APPEARANCES ON DISSECTION.

We shall now advert to the appearances which have been observed on dissection of the bodies of persons who have died of Suffocative Cholera. These have been, pretty uniformly, a general *fullness* of the *internal veins*, particularly of the *head* and *intestines*; water has been observed in all the ventricles of the brain. The lungs, much collapsed, —or gorged with blood, have been remarked to contain frothy sputa; in either case, they contained little air, and suffered no further collapse upon opening the chest. The right side of the *heart* has been generally engorged; and the *blood*, when found in the left side or in the arterial system, has been for the most part *fluid*, and *very dark*. The gall-bladder, sometimes gorged with bile, has occasionally been found almost empty, its ducts for the most part closed by spasm. The small intestines have been tumid with flatus; and the great gut, which seldom contained any fœces, has been more or less contracted. The *urinary bladder* has been generally *empty and contracted*, though sometimes full of pale urine.

Arguing from these appearances on dissection, the most absurd notions have been entertained by some praitioners of the nature of the disease. Inflammation, eongestion, and all manner of traces of all manner of disease, have been supposed to be its cause. Having seen that the symptoms in life are identieal with those of loss of blood, the reader

may be curious to know whether or not we find, on the *post mortem* examination of animals bled to death, a similar congestion of the internal veins, and a general agreement in the appearanees detailed.

“ All the larger veins of the legs were opened “ in a small dog. At first, the pulse was aecele-“ rated—soon after it became slow and languid. “ The heart’s motions, though feeble, were never “ irregular ; and indeed, long before death, they “ could neither be seen nor felt. *Borborygmi* (or “ rumblings of the bowels) were early heard, and “ lasted a long time. The breathing at first was “ hurried ; soon it became slow and laborious, and “ at last convulsive. The *pupils* were frequently “ examined ; they *became gradually less and less* “ *obedient to the influence of light*, and at length “ eased to eontract altogether. Slight *spasmodic* “ contractions took place, first, in the femoral and “ abdominal museles : then the head, neek, and “ fore-legs were likewise *powerfully affected with* “ *spasms*.

“ At this time a *deep sleep* seized the animal : “ he *breathed slowly and with difficulty*, and, for “ a little time before death, respiration at inter-“ vals was suspended altogether. Whenever the “ breathing was strong and quiek, the pupils re-“ eovered their tone, and the blood was more “ strongly propelled. In an hour death elosed “ the seene.

“ The disseetion of the head was first begun. “ The membranes of the brain were loaded with

" *turgid vessels*, the larger of which were of a
" very dark colour. A bright red spot was ob-
" served near the cornua, where some degree of
" sanguineous effusion had taken place. The
" sinuses were full of blood. In all the ventricles
" there was more or less water effused : the base
" of the brain, and the eighth and ninth pair of
" nerves, were inundated with water. A net-work
" of red vessels was spread round their origins,
" and the optic nerves were in the same state. In the
" cervical and lumbar regions of the spinal mar-
" row, there was a considerable degree of redness.
" *The right side of the heart was full of blood* ; the
" left auricle contained a little. Some blood was
" found in the large veins, and a few drops in the
" thoracic aorta.

" The stomach, and all the intestines, were
" *tumid with flatus* ; the veins of the mesentery
" were turgid. The turgid state of the veins of
" the head was very remarkable : indeed, through-
" out the whole body the veins were tumid." In
another experiment, " the right side of the heart
" contained a good deal of fluid blood ; the rectum
" and *urinary bladder* were found *contracted and*
" *rugous.*"*

The collapsed state of the lungs, so constantly observed after death from Cholera, is also very remarkable in animals that have been bled to death. Indeed, both the essential phenomena in

* Dr. Seeds on the Effects of Loss of Blood.—*Medical Gazette*, 2nd January 1830.

life and the *post mortem* appearanees would seem to be identical.

The reader has seen that paralytie and spasmodic action, so frequent in the epidemie Cholera are equally frequent results of Cholera from loss of blood. I have repeatedly known palsy of one side follow bleeding from the arm. Paralytie, blindness and deafness, are common both to Cholera and haemorrhage. During the epidemic, spasms of the stomach and intestines have been very generally the forerunners of paralysis of both. This has been ineontestably proved, by the most potent stimulants and irritants, however administered, being retained,—and by pills, powders, food, &c., being found after death completely unchanged throughout the whole track of the alimentary eanal. The *gastric* or stomachie branch of the pneumo-gastric nerves then being proved to be palsied, can we doubt that the pneumonic or respiratory portion also is in the same state, when, by *artificially paralyzing it, we have every essential symptom and change witnessed in those who have died of Suffocative Cholera?** “In general, when these nerves

* It is now more than seventeen years sinez I published in the *Lancet*, a paper on this disease, in whieh I showed that death took place from a palsy of the pneumo-gastric or eighth pair of nerves. Dr. Wilson Philip, in a pamphlet of his, published long after, particullarly alluded to the analogy betwixt cholera and the effects of the division of these nerves. He endeavoured to reeoneile the symptoms with the result of dissection, in a different manner from what the reader will find submitted in these pages.

" are divided about the middle of the neck, *respiration* immediately becomes laboured, or *hurried and irregular*, and the animal dies in the space of a few hours. In a dog, in which the par vagum (pneumo-gastric pair of nerves) was divided in the neck, the animal survived three days. There was *dyspnœa* (difficult breathing) with frequent *vomiting* and the stomach was found to have become inflamed."* *Loss of voice*, so frequent in Cholera, is a constant effect of this operation. Digestion in *both* cases seems to be performed. In both, the arterial blood becomes gradually darker and darker, and the subject grows cold. The lungs after death, from this operation, are found as in Cholera, *tumid*, and partly *gorged with blood*, partly filled with frothy sputa. In general also those organs are similarly collapsed and engorged, and as in the disease in question, seldom or never suffer any further collapse on opening the chest. The whole *internal veins* are similarly *loaded with very dark blood*, and the right side of the heart is gorged with it. As a result of this operation, Sir B. Brodie found less carbonic acid evolved. Dr. Davy particularly called the attention of his medical brethren to the same fact in Cholera. Sir B. Brodie, after artificially paralyzing these nerves, inflated the lungs, and restored the natural colour of the blood. I found

* *Mayo's Physiology*.—Mr. Mayo has here mistaken congestion for inflammation. The same mistake has been made by writers on Cholera.

that this could also be done in Cholera; for, immediately after a patient had ceased to breathe, I commenced the *process of artificial respiration*, and found, upon dissection as I had anticipated, *blood in the left ventricle and aorta of a scarlet colour*.

The essential symptoms, and the *post mortem* appearances both in Suffocative Cholera and in cases of division of the pneumo-gastric nerves, are identical.

Cholera Asphyxia, then, may be the effect of any thing in nature acting on the Brain and Spine, so as to withdraw, by shock or otherwise, their influence from the various nerves of the body, but more particularly from the nerves necessary to the functions of *respiration* and digestion. Arsenic, veratria, prussie acid, and other poisons, can produce all the symptoms of this disease. And according to the particular nerves most deprived of the cerebro-spinal influence, do the symptoms of the patient during the epidemic, vary—in one being mild and tractable—as in cases where the respiratory nerves are not involved; in another passing rapidly from life to death, or exhibiting numerous forms of disorder, such as lock-jaw, palsy, epilepsy, apoplexy, delirium, and even hydrophobia—puzzling the physician alike for a denomination and a remedy.

Before we endeavour to explain the rapid succession of the symptoms which principally characterize the fatal form of the epidemic, I may premise, that the evidence of a diminished influence

of the Brain over any part of the animal economy, is, according to the degree of that diminution, a languor in the performance, or a morbid increase of that part's action or function. The complete absence of such influence is marked by a loss of function of the part.

These propositions I consider as demonstrated,

1. Because the interruption of the cerebro-spinal influence, by pressure on the motor nerve of a muscle, causes tremor, spasm, weariness or palsy, according to the degree. Similar pressure on a sensific nerve, increases or diminishes sensation. Applied to a glandular nerve it increases, diminishes, or prevents secretion.

2. Palsy is often preceded by muscular tremor, spasm,* or languor ;—amaurosis, by false or double vision ;—loss of hearing, by ringing in the ears, or partial deafness ;—loss of feeling, by tingling pain or numbness ;—idiocy, by hallucination, delirium, or stupor.

3. These phenomena can all be produced by the passions, cerebral shock, loss of blood, defective nutrition—whether as regards food or air—and by substances, the admission of which into the system in health prevents assimilation. They may be produced also by the various poisons. *Each and all of them* having been witnessed

* Sir B. Brodie found spasmodic action to be a frequent result of decapitation—another proof, if such were wanting, that spasm is the effect of diminished cerebral influence.

during the course of the epidemic—each and all of them, on the fairest principles of induction, must be ascribed to diminution of cerebral or nervous influence over the different organs with which they are associated.

That increase and cessation of function should both mark a state of decrease of this influence might at first sight appear paradoxical; but a little reflection will teach us to explain the fact.

Every organ of the body has an acting, controlling, and directing power. Diminution in the *acting* power of a muscle is known by weariness or weight, and inability to move; tremor and spasmodic movement show diminution and loss of the *controlling* power: the former, being merely a rapid succession of incomplete spasms, marks the possession of more of this power than the latter. Pain, numbness, and insensibility, are evidences of variation and loss of the *pereceptive* or *directing* power. Complete palsy is the effect of the total absence of all these powers.

In the same manner I explain the disorders of the glandular system. Excess of secretion proves the absence of the controlling power; diminution and suppression, the diminished state or loss of the power of action; vitiation, the loss of the power of combination or direction.

Morbid action, then, so far from being the effect of increased vital energy, is in reality the symbol of its partial absence.

The frequency of the rice-water appearance of

the fluids ejected from the stomach and bowels, during this epidemic, has, by some, been supposed to throw a mystery over the disease in question. But this appearance is sufficiently explained by spasm of the gall-duets preventing the admixture of bile. In thirty cases which I myself examined after death, I could not force the bile through the gall-duets by any pressure of my hand. That spasm of these ducts is often induced by the passions, is an instance in proof that in this disease it is caused by cerebral alarm or shock. I have seen this same rice-water-like fluid vomited by a girl immediately after amputation of the thigh, her constitution having taken alarm at so great an injury.* In the course of the epidemic Mediterranean Fever, the ejections of some of the sufferers, more especially *those who had been largely depleted*, precisely resembling the matters thrown up in Cholera. Adverting to the case of Mr. Boyd the surgeon of the hospital, Dr. Denmark says,—“I was called to him in the middle of the night, and found him scarcely able to articulate, “vomiting a turbid or *whey-coloured fluid*; with “excessive anxiety, sobbing, and a pulse extremely “weak; cold clammy skin, and the features pale “and shrunk.”† The disease had become Cholera Asphyxia. The subject of it recovered.

I shall not take up the time of the reader with the hypotheses of authors, nor attempt to show

* The operation was performed by the late Mr. Liston.

† Medico-Chirurgical Transactions.

the futility of the reasoning of those speculatists, who affirm, that vomiting and spasm in this epidemic are efforts of nature to get rid of something noxious from the system. These, as in hæmorrhagic Cholera—Cholera from loss of blood—are merely symptoms of a diminution of cerebral or nervous influence over the respective organs to which they relate.

The essential symptoms, then, and the *post mortem* appearances in both, *are identical*. Explain the one, and you require little to add in elucidation of the other.

In both cases the sensorial or voluntary powers remain almost to the last. It is by these that the peectoral, intercostal, and other external respiratory muscles act; and you do therefore see them acting with tolerable freedom till a short time before death. How then does the fatal result in both instances take place from asphyxia—from suffocation?—We shall here consider more fully the functions of the pneumo-gastric nerves.

The pneumo-gastric, or, as they are sometimes called, the *eighth pair* of nerves, supply by their recurrent branches, certain muscles of the glottis and larynx necessary to respiration and voice. They send branches to the lungs, the stomach, and heart. Through these nerves, the chief vital organs are immediately influenced by the Brain. Through these nerves, also, the *vitality of the blood* is maintained. Where these nerves are paralyzed, the blood gradually dies!

The first diminution of the cerebral influence over the stomach,—whether artificially produced, as in the case of stun, division of these nerves or loss of blood,—is followed by *vomiting*. To this a passive or palsied state succeeds, and no stimulants, however powerful, can again rouse the organ into action. *Digestion*, is also *interrupted*; and we remark, that undigested meat is frequently seen in the ejections of the Cholera patient. The feeble or *whispering voice* observed in the disease shows, that the muscles necessary to that function are also paralyzed; and the *sighing* and *anxiety* prove that the *respiratory process* is interrupted. That this must be by a derangement principally of the *internal* muscles of respiration, is further proved by the external muscles being observed to act freely under the control of the will. The sufferer raises his chest to its full height; but you see the abdomen becoming at the same time lank and depressed, and you therefore know that the lungs do not receive their proper supply of air.* The

* Mr. Orton has allowed this circumstance to escape his notice. He has also forgot, that upon dissection the lungs were collapsed, and contained little air. "We have the "evidence of our senses," he says, "to convince us, that "there is no deficiency in the quantity of the air taken "into the lungs. On the contrary, we see the respiration "hurried, which convinces us that an unusual quantity "must be taken in." The hurried respiration is an evidence of the attempt to take in air; but the depressed abdomen in life, and the collapse of the lungs observed after death, demonstrate that the effort is unsuccessful.

diaphragm aseends in proportion as the chest aseends, and the lungs are not expanded. There is an *obstruction to breathing*; and the following is the manner in whieh this is produued :—The dilating museles of the mouth of the windpipe,—the glottis,—whieh the pneumo-gastrie nerves supply, becoing, like other museles, wearied or paralyzed, eease to aet. The lips of the glottis, having nothing to open them, meet in close approximation, and, when the patient endeavours to inspire, little or no air is admitted. Expiration, on the contrary, is performed with eomparative faecility; because the rush of the air outwards, assisted by the weight of the descending chest expands the glottis, whieh opens like a valve, and the egress of the air is thus little impeded. It will be seen, that at every sueeessive inspiration and expiration the quantity of air in the lungs must be lessened; *and that the lungs themselves must collapse and diminish in size.* They resemble more and more the lungs of the child that has never breathed, and sometimes sink like them, when placeed in water after death. To preserve the chilid from asphyxia,—from suffoeation,—there is a direct eommunieation betwixt the right and left sides of the heart, by means of the *foramen ovale*—a hole whieh beeomes closcd soon after birth. The sufferer in Cholera having nothing of this kind, the blood must gradually aeeumulate in the right side, for the gradually eollapsing lungs intercept the full flow of the blood. The pulmonary artery

becomes more and more gorged with thick viscid un-aerated blood, and the common secretion of the mucous membrane of the lungs, by the constant effort at inspiration, is worked up into the frothy sputa which dissection shows after death. Those who attribute the absence of pulse at the wrist to a cessation of the heart's action, are in the great majority of cases in error. Could sufficient blood reach the left side of the heart, there would be no want of arterial pulsation; but as the left side receives only a small quantity, it cannot by its most rapid contractions supply the extreme arteries. The external veins, as a consequence, receiving little or no blood, must be necessarily nearly empty; and this is the reason why, when a lancet is plunged into them at an advanced stage of the disorder, a few black drops only escape; for the atmospheric pressure forces on to the right side of the heart the whole contents of the external veins. However loaded the right side of the heart may be, this blood cannot retrograde into these veins, for the valves with which they are provided prevent this. The superfluity, therefore, will be found in the internal veins, which, having no valves, relieve to a certain extent the overloaded right heart. That the extremities are cold and livid, is partly owing to the diminished nervous force of the body, and partly to the blood which they contain never having come into contact with the atmospheric air. In pueri eerulei, the greater part of whose blood passes through the open *foramen*

ovale, the extremities are cold and blue, but they are not shrivelled as in Cholera, for they are sufficiently supplied with blood, though that blood, from its partly un-aerated state, is unable to maintain the nervous influence necessary for the sufficient generation of heat.

The whole symptoms of Suffocative Cholera are expressive of diminished nervous influence : and the internal congestion so often looked upon as the *proximate cause*, is, in reality, the *EFFECT of the collapse of the lungs*, caused by the paralysis of the pneumonic portion of the pneumo-gastric nerves. Biehat produced enormous congestion of the lungs, liver, spleen, &c., by strangling animals slowly ; and the experiments of Professor Coleman demonstrate, that the whole air of the lungs is nearly exhausted in animals so destroyed. Collapse of the lungs, visceral congestion, and a dark and uncoagulable state of the blood, are common to both the Cholera patient, and the dog that has been killed by hanging.

It would be only wasting the time of the reader, to attempt a formal refutation of the various theories that ascribe the origin of the disorder to inflammation, congestion, &c. The authors of these have evidently mistaken the congestive results of suffocation for primary local inflammation and congestion. Their reasoning being founded on false facts, their treatment necessarily partakes of the errors in their theories.

The *extreme thirst*, so common in Cholera, like the craving hunger which some patients manifest

in particular cases of the disorder, is a mere morbid sensation. Whenever the Brain loses its perfect control over the digestive organs we find more or less thirst. It is present in the Passions of Grief and Terror, where also the sighing and anxiety show the inability to breathe freely. It is the death-thirst of the wounded in a field of battle, and of all who have lost much blood. As it is, for the most part, an early symptom of the disease, the patient, if on a march, from its urgency, naturally seeks to assuage it at the first ditch or tank he comes to. His friends, in such instances, not unfrequently ascribe his disorder to some poisonous principle in the water. Though we cannot agree with their views in this respect, it must not be denied, that when the epidemic prevails, drinking cold water alone will sometimes set up every symptom of the disease.

The *restlessness* remarked in the epidemic malady, is common to every disease where the respiratory process is impeded. Take the symptoms of a person whose lungs have collapsed from an artificial cause—the effusion of blood into the thorax for example; and this restlessness, in common with some other symptoms of Cholera, cannot fail to strike the reader. “ You will find him,” says Mr. John Bell, “ with bloody foam at his mouth; “ his face pale in the cheeks, and livid round the “ lips and eyes; heaving the breast with intoler-“ able anguish, *tossing from side to side in bed.*”

The cold sweats are expressive of the complete

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The *restlessness* remarked in the epidemic malady, is common to every disease where the respiratory process is impeded. Take the symptoms of a person whose lungs have collapsed from an artificial cause—the effusion of blood into the thorax for example ; and this restlessness, in common with some other symptoms of Cholera, cannot fail to strike the reader. “ You will find him,” says Mr. John Bell, “ with bloody foam at his mouth ; “ his face pale in the cheeks, and livid round the “ lips and eyes ; heaving the breast with intoler- “ able anguish, *tossing from side to side in bed.*”

The cold sweats are expressive of the complete

want of tone in the cuticular apparatus, and with the small quick pulse, mark that state of extreme prostration common to the *moribund* in all diseases.

Objections may be urged, that the different symptoms of Cholera remarked on the division of the pneumo-gastric nerves, are not present in every ease of the disease. The simple answer to this is, the Brain in Cholera does not always lose its control over the same nerves. Moreover, its diminution of influence is often confined to a portion or division of the pneumo-gastric nerve. This nerve is not a simple chord; it is a combination of many fibrils having each a separate influence. In one ease of the epidemic you may have, for example, vomiting with loss of voice, but without any symptom of difficult respiration. Here the stomachic and voeal fibrils are paralyzed, while the pulmonic portion still possesses the cerebral influence. The patient in this ease shall perhaps have a full quick pulse, with hot skin; his arterial blood will be red; and if a vein be opened, the blood may flow *per saltum*. Let the Brain in addition lose its influence over the pulmonie portion of this nerve, what a difference in the state of the sufferer. In the former ease, the patient may have little to complain of. The loss of voice is ineonvenient, the vomiting is troublesome; but he can breathe freely, and he has perhaps little or no thirst. In the latter, the respiration is hurried; the pulse is quick, small, and almost impereetible; the thirst insupportable; and the whole appearanee that of

a dying man. Such, then, is the wide difference betwixt Cholera *Mitior* and Cholera *Asphyxia*! Vomiting, purging, and spasm of the muscles of locomotion, may be objects of attention in the one;—in the other, our first and immediate care is the respiration.

It has been remarked by almost every practitioner of experience in the disease, that the proportion of recoveries is infinitely greater among females than males. The physiological principles upon which this may be explained, afford an additional proof, that in this epidemic the great proportion of deaths takes place from a palsy of the dilating muscles of the glottis. In the female, these muscles are shorter than in the male; the lips of the glottis do not therefore approximate so much: the voice is consequently less grave, and she can, for the most part, remain longer in a state of collapse—she can sustain imperfect respiration for a greater period. I have known a woman remain in this state for five days, and recover.

But there are yet other modes in which death may take place from the same epidemic influence, as indeed from every other cause of disease, according to the particular respiratory muscles in which the loss of nervous influence may most prevail; and this will account, not only for the constant variation of the symptoms, but also for a difference of appearance on *post mortem* examination.

Spasm of the constricting muscles of the throat will produce a rapid asphyxia; and the appearances,

both before and after death, will be nearly the same as we witness in criminals who have been hanged.

When the debility is greatest in the peectoral and intercostal museles, the patient appears to breathe softly, and seems to sleep ; but when roused, he will eomplain of great weight, and will change his posture again and again. These museles are in health influeneed by the will : when the sensorium is affected in this disease, the will does not stimulate them to aetion. The appearanees on disseetion do not differ much, so far as the lungs are concerned, from what we witness in the subjects of lingering disease.

Cramp of the diaphragm is a more rare symptom of the epidemic. A continuance of spasm in this situation very soon terminates life ; and the pain is exerueiating. Disseetion in this ease exhibits much the same appearanees as in the form last noticed.

I have known eases terminate fatally from eramp of the heart. The following appears to be a ease of eramp of the left side of the heart :—

Camp, Chitpett, 8th June, 1830. — Corporal Aspberry, H. M. 41st Foot, on route from Arnee to Triehinopoly, near the termination of this morning's march was observed to drink at a diteh ; shortly after which he was brought up to the hospital tents in a state of delirium, with eramps of the museles of the legs and toes, pallid face, and impereceptible pulse. Frietions to the legs and arns, and the internal administration of diluted

alcohol, brought back a gleam of reason ; and the skin, whieh before was cold, *became warmer* ; a feeble pulsation was also felt in the femoral artery. When asked if he had thirst, he answered, "No." Delirium again soon returned : the muscles of the throat could be observed in violent spasmodic action ; the breathing was almost interrupted ; the fingers were shrivelled and blue ; blindness and insensibility soon succeeded. From one eye there was a considerable lachrymation ; the other was quite dry. The pupils, at first contracted, became permanently dilated ; the eorneæ were flaccid. Life was terminated in about two hours from the period of invasion.

On dissection, the lungs suffered no collapse when the thorax was opened ; they were somewhat gorged. The right side of the heart was full of dark blood, which flowed into the cavity of the chest when the subclavian vein was accidentally cut, leaving the right auricle and ventricle in a flaccid state. The left side was so closely contracted, that, when bisected, there was not any cavity for the blood.

I was led from this case to reflect, what would be the consequence of spasm of the thoracic aorta below the giving off of the large arteries of the head. Would it not be a perfect Apoplexy ? When the epidemic raged in the 30th Foot, while the Regiment was under my charge at Wallajahabad, two fatal cases of Apoplexy occurred in Europeans within two days of each other. I imagined at the

time they might be connected with the epidemic influenza : I am now strengthened in this opinion, for, knowing that the external spasms continually vary in their situation, we can analogically conceive them attacking internal parts in a similar manner ; and such a spasm as that alluded to would certainly produce apoplexy. The ease just detailed, might by some be supposed to be one of *coup de soleil* ; but when it is observed that two other individuals were attacked with the more common symptoms on the same morning, and that on the preceding evening a female had the mild form of the disease, the reader will at once ascribe it to its true cause, the epidemic influenza. In England, such a ease would have been called simple apoplexy ; the more especially, that neither vomiting nor purging were symptoms. Epilepsy, also observed during the ravages of the epidemic, is a disease which often terminates in what is termed sanguineous apoplexy.

When the epidemic Cholera first appeared in Bengal, its form varied little from the milder Cholera of Europe. Instead of diminished, there was increased arterial action ; the pulse was full and bounding, the skin hotter than natural ; the bile, though sometimes absent, was for the most part secreted in large quantity ; and there was much purging, with intestinal spasm. How different the patient's situation from one labouring under Cholera Asphyxia !

The danger of any disease is in the ratio which

the nerves affected hold, in their importance, to the proper carrying on of the functions of life. Digestion may cease to be performed—the muscles of locomotion may be in a state of spasm or paralysis for days—the patient may have profuse vomiting and purging for a considerable period; but while the breathing is free, and the pulse maintains the character of full and bounding, (which it could not do were the respiration materially interrupted,) the patient is comparatively safe. In this form of Cholera, the respiratory muscles, external as well as internal, perform their office; and the languor or lassitude, the spasm or paralysis of the rest, are of little immediate consequence; yet to these symptoms, so secondary in importance, have the generality of practitioners prematurely directed their exclusive treatment, where the patient meanwhile was sinking from suffocation, which had no relation to them, either as cause or effect.

The simple difference betwixt Cholera *Asphyxia* and Cholera *Mitior*, or Cholera with fever is, that in the *first*, the internal muscles of respiration are paralyzed; while in the *second*, they perform their natural function, and partake not in the derangement of those less necessary to the continuance of life. They are so far different forms of disorder.

We have elsewhere referred all the diseases of man to one type—Ague. What analogy is there between Ague and Cholera? Tremulous and spasmodic action are the primary symptoms of both. In both, we have for the most part nausea

or vomiting. The ague patient sometimes labours under diarrhoea. Oppression of breathing differing only in degree, and coldness of the extremities, are common to both: the increased flow of pale urine, so often a symptom of ague, is occasionally present in Cholera. In one instance of the latter disease which came under my observation, that secretion passed from the patient involuntarily a short time before death. Suppression of urine, so common in the epidemic of the East, was a symptom of the Walcheren ague. When there is no reaction, death is preceded by similar stupor in both. *You have Ague, too, with hot skin and bounding pulse;* a state analogous to Cholera Mitior, or Cholera with fever. When not fatal, Cholera, like ague, has generally a hot and sweating stage. Lastly, when ague has terminated life by a single paroxysm, dissection shews the same appearances as in Cholera. Visceral disorder and inflammation are sometimes the consequences of Cholera, as of ague.

We have already anticipated some of the causes of *sporadic* or occasional Cholera: Can Cholera be produced by inflammation,—by secondary disease? Having shewn, that even the irritation of the urethra by a bougie may, in a reflected manner, give origin to the worst form of the disease, we can readily believe that the simple intensity of pain from inflammation of a vital organ may produce all its symptoms; and accordingly, in enteritis, gastritis, and some other inflammatory diseases,

we see life terminated by a series of symptoms precisely identical. The symptoms preceding these, however, remove all obscurity as to their cause. That inflammation is not the cause of the epidemic Cholera, is proved by the general absence of pain, except such as may be referred to spasm, vitiated sensation, or flatus. Moreover, death has been known to be the immediate and instantaneous effect of the epidemic influence. The rapid recovery of the patient, when reaction takes place, could not occur, were the brain or any other important organ, changed in structure, or even partially inflamed.

The occasional evidences of inflammatory action in the intestines of those who have died of Cholera, may be looked upon as entirely accidental. In some instances, these have doubtless been *produced by the treatment in life*. The white viscid mucus which Mr. Annesley dwells upon, in his book on the disease, is mere excess of the natural mucus lining the intestine. May not this have been produced, in some measure, by the large quantities of calomel which form so prominent a feature in his practice? The question has been partly answered by himself. In his experiments with this medicine on healthy dogs, he found, that large doses of it produced an appearance precisely similar in the mucous membranes of the bowels of these animals!*

The epidemic of the Penitentiary is an instance

* See his Treatise on the disease.

in proof, how many forms of disease may originate in the same cause. There, the united influence of confinement, impure air, defective food, and the depressing passions, produced diseases, which the nosologists have most widely separated in their systems,—apoplexy, epilepsy, dysentery, cholera.

It was a favourite mode of punishment with the Indian Princes, to withhold from their prisoners, salt, and substances which contained it. The diseases consequent to this privation of a substance essential to the living solids and fluids, were identical with those of the ship-scurvy,*—ulcers, dysentery, fever, and cholera.

From similar causes, occasional cases of Cholera occur in India, more especially among the poorer natives, whose food is almost limited to rice.

We have stated, that the soldier on a march, has occasionally, by the inept use of cold water, been attacked with all the symptoms of the disease when it happened to be epidemic. To this cause I have often also traced fever, and dysentery.

We see these diseases daily produced by intemperance. From the same cause I am sure I have witnessed every symptom of Cholera.

CASE 1.—Captain M——, generally of abstemious habits, drank deeply for two days, during one of

* The ship-scurvy proceeds not from the use of salt provisions, but from the want of vegetable food and fresh air; exclusive diet, animal or vegetable, will give identical diseases.

the ravages of the epidemic. On the third, he was seized with the symptoms of the disease. He remained in a state of more or less collapse all that day and night; the pulse now faint, now strong, raising and repressing hope accordingly. On the evening of the next day, he vomited some matter *like coffee grounds*, became every hour more feeble, and sunk altogether about nine o'clock at night. The fluid ejected from the stomach and bowels, on the accession of the disease, was of the usual congee-like appearance.

CASE 2.—Lieut. B—, several years resident in India, a few months after my disembarkation at Madras, sent for me in the morning to his quarters. He had been indulging in deep potations for many days. He complained of malaise, for which I gave him some calomel and rhubarb. During the day he drank a good deal; and about two o'clock, P. M., his servant came to tell me his master was very ill. I hastened to him, and found him with his face livid, the external jugulars gorged with blood, and his whole appearance that of a person suffering from strangulation. He was sensible; said he was like to choke, and that he had cramps of his limbs, and had vomited. I immediately opened a vein, but he died as the blood flowed; which it did in a full dark stream. The substance which he vomited resembled *coffee grounds*.

On dissection, the blood flowed freely from the divided lungs. The liver was much gorged; the

stomach of a dirty purple colour, being injected with venous blood.* In this instance, I suppose death to have taken place from spasm of the constricting muscles of the throat.

CAUSES OF THE EPIDEMIC.

Cast your eye over the history of epidemic diseases, which of them all have we traced to its origin ! Had the Cholera confined itself to a small province only, we might have been led to ascribe it to some local cause of vitiation, or insufficiency of food or air ; but when we have seen it simultaneously depopulating the immense Indian continent and its isles ; stretching to Persia, Egypt, and Russia,—and rapidly spreading to every country and city of Europe ; we are compelled to acknowledge, that neither of these could have been the constant cause of a pestilence so universal. The origin of this disease then must be atmospheric or telluric. “The “phenomenon most generally and closely connected with *pestilence*,” says Mr. Noah Webster,

* This dirty purple appearance of the stomach and bowels has often been observed on dissection of persons who have died of Cholera, and has been mistaken for gangrene. I remember having witnessed the same appearance, in the stomach and intestines of some horses that died of inflammatory *sore throat*. The veterinary surgeon fancied that they died of abdominal mortification ; and as the disease was prevalent in his regiment, his treatment was chiefly the application of hot water blisters to the belly ! He had the good sense, however, to blister the throat, when the true nature of the disease was explained to him.

“ is an *earthquake*. From all the facts that I can find in history, I question whether an instance of a considerable plague in any country can be mentioned, which has not been immediately preceded or accompanied with convulsions of the earth. If any exceptions have occurred, they have escaped my researches. It does not happen that every place where pestilence prevails is shaken; but during the progress of the diseases, which I denominate ‘pestilence,’ and which run in certain periods over large portions of the globe, some parts of the *earth*, and especially those which abound most with subterranean fire, are violently agitated. By adverting to the foregoing history, the reader will find that all those years in which considerable earthquakes have occurred in America, have been remarkably sickly. These years are 1638, 1647, 1658, 1662, 1663, 1668, 1725, 1727, and 1783.”—See the *History of the Bills of Mortality*. “Even the slighter shocks have been attended with considerable sickness, or have introduced a series of epidemics, being cotemporary with the measles, influenza, or sore throat, as in 1669, 1720, 1737, 1757, 1761, 1769, 1771, 1791, 1797. To enumerate the instances in Europe and Asia, would be a useless repetition of the events related in the preceding history to which the reader is referred.”—*History of Epidemic Diseases*, vol. ii. p. 15.

Mr. Orton’s researches prove, that earthquakes

have been more frequent in India from the first appearance of the Cholera as an epidemic. My own observations will not allow me to believe, that these were mere coincidences. On two occasions, an earthquake happened at Bangalore, while I was stationed there, and among other intractable cases of disease, some of the various forms which the epidemic has been known to assume, were shortly afterwards admitted into the European and native hospitals of the place. On the whole, from all that I have seen and read of this Cholera, I incline to the belief, that *telluric* rather than atmospheric agency is the *chief* element in its production. But mark, I do not exclude atmospheric influence—on the contrary, that influence has appeared to me, in numerous cases, to have contributed both to the spread and to the disappearance of the disease,—particularly thunder-storms, east winds, rain, and so forth. Still, even these, in a great degree, depend on the electrical and magnetic conditions of the earth. The great majority of Cholera eases in the East have happened between sunset and sunrise. Its attacks have very generally commenced either *during sleep*, or soon after getting out of bed in the morning, and not unfrequently on a march, which in India is always begun long before the sun makes its appearance above the horizon. I have known the epidemic confine itself to those who *slept* on one side of a river—nay, I have seen it exclusively attacking those only who *slept* on one side of a barrack—though all the time the most per-

fect *daily* intercourse was kept up with the people on the other side of the barrack or river. How can you account for the escape of those last, but for the fact that they did not *pass the night* on the side where the epidemic prevailed. During the *day*, there was every kind of intercourse between the affected and the unaffected sides; but as the people of this last did not remain the *night* on the affected side, the fatality must undoubtedly have reference to the place of *sleep*, and this, I think, is evidence of a *telluric*, rather than an atmospheric origin of the epidemic.

The first appearance of Cholera, as a great epidemic disease, in India, took place when the Marquis of Hastings lay with his army before the fort of Gwallior.* In three days and a-half, of his native and European troops and their numerous camp followers, *ten thousand* were swept off. At the very same moment Sir Rufane Donkin, with a force of 7000 men, lay on the other side of Gwallior, without an instance of even one man being attacked by Cholera; and when the Marquis of Hastings moved his camp twelve miles, the disease at once ceased! Some years after, while the forces were in cantonments at Meerut, the Horse Artillery being placed on the right, the 14th Regiment of Foot in the centre, and the 8th Light Dragoons on the left, the Centre *was fiercely*

* A violent shock of an earthquake was felt in his camp at the moment he was mounting his elephant to begin his march against this fort.

attacked by this malady, and the Artillery and 8th Dragoons did not lose a single man !

Such facts are utterly incompatible with the idea that the disease is caused by any malaria or effluvium in the *air*. Electrical or magnetic perturbations of the earth are, to my mind, the really predisposing cause of the epidemic;—and curious enough, perturbations of the magnetic needle have by some been observed during its continuance. It has been asserted, even, that electrical instruments and magnets have in some instances been rendered almost useless, in places where the epidemic prevailed. Whether this telluric influence is, of itself, sufficient to produce an attack of the disease, or be predisposing only, I have my doubts. This much I am satisfied of, that while it prevails, any other cause of disease may at once set it up. A slight debauch, excess of heat or cold, an emetic, or a purge given for some other complaint, have appeared to me to be the immediately exciting causes; and in one case, the prostration which followed a broken leg actually *became* Cholera Asphyxia ! How much the passion of terror disposes to the disease, I have had many opportunities of observing. I have already shown the effect of this passion upon the dog, and certain I am, I have seen persons with every symptom of Cholera from a similar cause; females more particularly, among whom authors have remarked, that certain disorders, such as we denominate (absurdly enough) hysteria, epilepsy,

chorea, &c., become absolutely epidemic from sympathy or horror. I have known the disease in the female commenue with hysteria, take on the form of Cholera, slide into lock-jaw, and finally end in death.

The knowledge of the first link in the chain of causation, can make little difference in the mode of

TREATMENT.

Let us not imagine that a speeialty of cause will throw a mystery over effects; that Cholera from terror differs in essence from Cholera produced by a poison or a meehanical injury; or that Fever from a blow is less a disease of the nervous system than the same disease occurring from loss of blood. "The Fevers," says Mr. Abernethy, "produced by local disease, (injury?) are the very "identical Fevers which physieians meet with "when there is no external injury." Are not both equally subject to remissions or alternations? —and do we not successfully combat them by the same remedial means?

What is the proper treatment of Cholera Asphyxia?—Reader! what *can be* the proper treatment of a disease in which the *door* to medication, is, in most instances, all but closed by the early paralysis of the *gastric* nerves? When the pneumogastric nerves are *artificially* paralyzed in the dog, not only does digestion immediately cease, but arsenic and some other poisons have not their usual effect on the paralyzed stomach! It is the same

in the great majority of cases of Cholera Asphyxia. The *stomach* is early *dead* to the sustaining forces of food and medicine, while the lungs and blood in like manner are, at the same moment, prevented from receiving their proper *pabulum*—the atmospheric air! How humiliating the position of the ablest medical practitioners in such a case! The Cholera patient has been graphically described to be *death-struck*; and the disease from its very nature, is, in numerous instances, from its commencement to its close, a mere *death-scene*! Before the sufferer can even be seen by a physician, his case is frequently hopeless. One thing is certain, if medicine is to cure him it must be quick. The physician must resort at once to a remedy having an *instantaneous* influence over the Brain and Nerves.—Has *Calomel* such an influence—calomel, the drug to which the practitioners of the East rush in all diseases!—In the boasted calomel *I* have no faith as a remedy for Cholera. If *I* have proved, and *I* trust *I* have proved even to a demonstration, that the rapid dissolution of the patient is caused by actual palsy of the nerves of respiration, ought we to trust to a substance which can only act upon them by absorption and that, too, only by a long and sustained use? Over these nerves calomel has no immediate power. If it be said that it acts on the liver and secretory organs, *I* answer, it is the height of folly to direct attention to these while the patient is *sinking*, not from the abundance or suppression

of any secretion whatever, but from *suffocation*, caused by palsy of the respiratory nerves, with which, as already shown, the state of the secretions has no relation, either in the light of cause or effect. Where these are disturbed they are only coincident symptoms. Neither is calomel a preventive of the disease, as some have supposed. I have witnessed fatal cases of Cholera, where the patients laboured under *salivation from calomel at the time of attack*; and that too so frequently, that I have no doubt salivation rather predisposed the patient to the disease! Calomel a cure for Cholera—calomel, which so often depresses the vital energy of every part of the economy! He trusts to a reed who talks of calomel at such a time!

Could we anticipate an attack of Cholera, in nineteen out of twenty cases, an *Opiate*, or a powerful *Stimulant*, might save the patient. At the very commencement of the disease I have frequently seen each of these successful. Given at a more advanced stage, opium appeared to me only to hasten the state of stupor which so often precedes death. Its repetition then is decidedly bad practice. In the earlier stages, I have found Brandy and Ether useful, and were it not for their intoxicating power, they would perhaps be the best cordials to which we could resort. More than once I have seen them prove disadvantageous on that account. Like opium, in the later stages they only stupefied the sensorium, and withdrew

the stimulus of the will from the external respiratory museles. Ammonia may be given in all the stages, and it is better adapted to the later stages than either opium or brandy. In preseribing stimuli, however, we must bear in mind, that, when frequently repeated, they too often exhaust the very principle whieh it is the objeet of our most anxious solicitude to support. It is good praetice to vary the stimulants—to alternate one with another.

Intelligent praitioners have observed that where repeated violent vomiting was a prominent symptom, reeover more often took place than where this was either less violent or altogether wanting. Dr. Denman has made a similar remark regarding vomiting in hæmorrhage :—
“ When patients have suffered much from loss of
“ blood,” he says, “ they will often have a sudden
“ and violent fit of vomiting ; and sometimes
“ under eireumstances of such extreme debility,
“ that I have shrunk with apprehension lest they
“ should have been destroyed by a return or in-
“ crease of the hæmorrhage, whieh I coneluded
“ was inevitable after so violent an effort. But
“ there is no reason for this apprehension ; for
“ though the vomiting may be considered as a
“ proof of the injury whieh the constitution has
“ suffered by the hæmorrhage, yet the aetion of
“ vomiting contributes to its suppression, and to
“ *the immediate relief of the patient*, perhaps by
“ some revulsion, and certainly by exeiting a more
“ vigorous aetion of the remaining powers of the

" constitution; as is proved by the amendment
" of the pulse, and of all other appearanees, im-
" mediately after the vomiting." Mr. John Hunter
looks upon vomiting in nearly the same light;
although produced by debility of the Brain in the
first instanee, it has the effect to refleet strength
baek upon the eonstitution.

I am disposed to entertain a favourable opinion
of *Ipecacuan* in *certain* eases of Cholera. In nine
sueeessive female eases where I employed large
doses of ippeeaeuan, I must aseribe the reeovery
whieh took placee in all, in some degree to the
remedy.

The similarity of the symptoms of Cholera to the
phenomena witnessed in those who have been bit
by the *Cobra*, or hooded snake, is very remarkable.
The same loss of the Brain's influence over the
respiratory nerves, is the eause of the asphyxia in
that ease. Now, the natives of India treat those
bit by the eobra with *arsenic*; and, in some pro-
vinees in Bengal, the Cholera has been met by the
virus of a speeies of this snake! Refleeting on
these faets, I was led to give arsenic a trial in
Cholera. Arsenic, I said to myself, ean do what
calomel ean not do: it ean at least influenee
rapidly the Brain and Nerves! In the ease of a
native, I aeeordingly gave it to the extent of two
draehms of Fowler's solution at a dose; the man
reeovered. An Englishwoman took a draehm of
the same preparation every half-hour, to the ex-
tent of four draehms. She was then treated with

stimulants, and the ease also terminated successfully. In other eases similarly treated, the patients I regret to say died. Previously to these trials, I employed the fumes of arsenie, whieh I made the patients inhale from a tobaceo-pipe. The recoveries and deaths were equal; but in most of the eases, the patients were in a hopeless state before I saw them. On the whole I was not satisfied with the results of arsenie as a remedy for Cholera.

The Prussie Aeid, from its positive power over the pneumo-gastric nerves, and also from its rapidity of action, might assuredly in the earlier periods be given with advantage. In my private praeticee, I find this aeid the most efficacious remedy for spasm and palsy with which I am acquainted. I once had oeeasion to preseribe it for traumatic loek-jaw in the horse. A draehm was injected into the reetum, and the animal obtained twelve hours respite from both the loek-jaw and the abdominal spasms. I often regretted while in India that I was so situated I could not obtain this aeid, when the Cholera prevailed there epidemieally.

The sueeessful experiments of Dr. M'Intosh and others, of *Bleeding* in the eold stage of ague, have been brought forward as a reason why the same praeticee should be adopted in the analogous stage of Cholera. Dr. M'Intosh supposed sueeess to depend upon relief of eongestion:—To me, that relief seems to arise from the exiteiment of a new alarm through the medium of the Brain and Nerves

—in some instances produced by fear of the lancet simply,—in others, the mere effect of the application of the *ligature*. The *ligature* alone, in the hands of Dr. Davis, was found to be singularly beneficial in the Waleheren ague, and in my own hands the same simple application has frequently arrested the epileptic paroxysm. Is not this explanation further borne out, by the greatest and most certain relief having been given by blood-letting before or at the very commencement of the fit? in other words, immediately after the application of the *ligature*, and before congestion could have taken place to any extent?* Fortunately for the ague-patient, his physician can anticipate the period of accession. Not so the solitary cholera attack—in which, from the early difficulty of respiration, real debility of the whole system so soon occurs. The patient here is almost in the identical situation of a person who has lost much blood; for his blood is un-aerated, and the means of obtaining air is denied him by a similar palsy of the respiratory nerves. The abstraction of a few ounces then is often difficult; and if syncope follows, it almost invariably terminates in death. I have had too many opportunities of witnessing the practice, to be at all sceptical as

* Curiously enough, while this sheet was going through the press, I read in *The Times* newspaper of the good effect of the *tourniquet* in Cholera, when applied to the legs and arms, by Dr. Wise of the Bengal Establishment. That gentleman, however, does not appear to be aware of the real manner of their action.

to the injurious effects of blood-letting in Cholera. In numerous instances, where the event was doubtful, the use of the lancet turned the scale, and ensured an unfortunate issue. Mr. Annesley, in his work upon this disease, is loud in his praises of the lancet; but he would appear to be led into this laudatory language solely by his theory of congestion. Congestion is the *effect*, not the *cause*, as he *thinks*, of the nervous derangement. Now "venesection," Mr. Travers well observes, "is one mode of relieving congestion; but a more pernicious one could not be devised, when the congestion is the obvious result of a sudden and extreme depression of nervous power." So perfectly do the symptoms of a Cholera-patient resemble those from loss of blood, were Mr. Annesley called to the couch of an individual suffering from haemorrhage, and not previously informed of the cause, mistaking them for Cholera he would bleed to relieve congestion! By diminishing the Brain's influence over the pneumogastric nerves, whether by their section, a blow, passions, poisons, or loss of blood, a like congestion will be found after death, as in this disease. We have shown the congestion which takes place in the dog from loss of blood. The same congestion is an effect of haemorrhage in man. Dr. Abercrombie examined the bodies of two patients who died from loss of blood, and found the veins of the Brain gorged, as in Cholera, with dark blood. Mr. Annesley recommends venesection in all stages.

How does he reconcile this measure with the fact, that, upon raising the head of the sufferer, he sinks fainting in the attendant's arms?—He says it is to get rid of dark blood. And why is this blood dark? Is it not because it is defective in its constitution? It wants a constituent principle. By lessening its volume, will this principle be supplied? Surely defective nutrition is better than no nutrition at all! It is not the presence of black blood in the Brain which destroys the patient, but the absence of arterial blood, without which every nerve is deprived of its energy. Why then rob the Brain of the little acrated blood which it may still possess?

Many bleed, blister, and stimulate, in a breath, in Cholera Asphyxia. This is Mr. Annesley's practice. Is it sensible or scientific? But Mr. Annesley tells us that the lancet subdues spasms. I have already shown that spasm of a muscle is the result of the Brain's diminished influence over the nerve that supplies it. Even Cholera *Mitior*, where the pulse is full and bounding, has in my experience been changed into Cholera Asphyxia by the employment of the lancet!

It is unfortunate for the patient when the practitioner prescribes solely for a name. We have already pointed out the difference betwixt Cholera Asphyxia and Cholera *Mitior*—*Suffocative Cholera* and *Cholera with Fever*. Having their origin in the same epidemic influence, they receive the same denomination. The results of medication

of every kind are widely different in these diseases.

When I first read in Mason Good, that Dr. Burrell saved 88 out of 90 of his later cases, I could with difficulty credit the assertion. But when, upon turning to the pages of Mr. Orton, I found these were all cases of Cholera *Mitior*,—Cholera where the face was flushed and the pulse was full and bounding, my astonishment at once ceased; for this form of the disease, though produced by the same epidemic influence as Cholera Asphyxia, generally terminates well under any mode of treatment. It was in such cases Mr. Whitelaw Ainslie worked miracles with a few grains of magnesia. When he proposed the same remedy for *Suffocative* Cholera, he showed he had at least some faith in simples!

The warm bath may be used with impunity in Cholera *Mitior*: not so in Cholera Asphyxia, where, in my experience, it was found to be the most deadly measure, next to blood-letting, that could possibly be pursued in the disease. The shock of the cold bath at the very commencement might prove useful in Cholera Asphyxia. In Persia, however, when the disease raged there, its indiscriminate use would appear to have increased the mortality from the disorder.

Every form of disease, by whatever produced, has a tendency to disappear after a particular period. The ancients had some knowledge of this when they ascribed critical days to fevers. Sir B.

Brodie has given instances, where, after apparent death from poisons which caused a disease similar to Cholera, he has by artificial respiration kept up life till the Brain had become accustomed to the shock, and the animal was thus restored to life under circumstances where it must indubitably have died without such a process.

Artificial respiration most assuredly might be beneficially resorted to in Cholera. By thus improving the state of the blood, life might be kept up till the Brain recovered its powers over the paralyzed respiratory nerves.

CONTAGION.

The proofs of a disease being non-contagious, must be either analogical or negative. As an example of the *negative*, I cannot do better than refer the reader to what took place in the respective camps of the Marquis of Hastings and Sir Rufane Donkin, before Gwallior. In the Marquis of Hastings' camp, where ten thousand died of the disease in three days and a half, neither among the bearers of the sick, nor the immense number of hospital attendants, nor the soldiers or sepoys visiting their dying comrades, nor among the sick in hospital (with the exception of the convalescents) were there more attacked, proportionally, than among other persons not thus exposed.

That the identical disease called *Cholera* can be produced by loss of blood, poisons, passions, and local injury, may be looked upon as *analogical*.

evidence that Cholera is not contagious. Small-pox, measles, plague,—each of these has some feature of its own which distinguishes it from all other maladies. It has something which cannot be produced by art. Every and all of the forms of Cholera may be brought on by artificial means!

Mr. Orton has indeed attempted to show, that the disease, after having made its first fearful ravage in the Marquis of Hastings' camp, spread *in successive time* to various other parts of India, as from the centre of a circle to the circumference. But this, be it remembered, is the law of storms. It is the law of many other telluric and atmospheric phenomena. Besides, as I have already said, all diseases have a tendency to propagate themselves by sympathy or terror; and where the telluric or other influence predisposes to Cholera, any depressing passion will frequently produce every symptom of this disorder. Cholera, however, is not a new disease; nor would any one who thoroughly understands its nature, imagine that it is so. In India, it can be traced as far as medical records extend. In some places of the Peninsula, it has been endemic time immemorial. The natives, it is true, are fearful of taking up their abode in such situations when it is prevalent; but this is not from fear of contagion, but because they know that they subject themselves to some hidden *local* influence by remaining there. The disease prevailed in England in the time of Sydenham, who described its symptoms: they were exactly those

of the Asiatic Cholera. Before I quitted India, Dr. Perston, of the 4th Light Dragoons, showed me some manuscript cases which occurred in Ireland among the 26th Foot, of which Regiment he was formerly surgeon. I recognized at once the Asiatic scourge in all its features. These cases took place long before the Cholera made its epidemic visitation in Europe in 1831 and 1832.

It has often been said, that one positive fact is worth a hundred negatives. This is not quite true ; a positive *fact* may be a fact wrongly interpreted, but, at all events, the positive fact should be a very stubborn one indeed, to convince us of the necessity of closing our ports, stopping our commerce, and interdicting intercourse betwixt man and man. A gloom is in this manner thrown over the minds of the mass of the people ; and nothing, I am certain, conduces so much as panic to favour the ravages of any epidemic. The natural effect of such measures is to add to the poverty of the indigent classes : their food becoming consequently more scanty and depraved, contributes with the gloom of mental depression to extend the disease in all its horrors.

In all times experience proves that men speculate upon the misery of their fellow-creatures. If the merchant, anticipating a period of scarcity, hoards up the necessaries of life in his granaries, there are not wanting members of the medical profession who, eager to profit by the chances of an epidemic, contribute to spread alarms, most suitable to their individual purposes. The public, as usual, panders

to the interests of the selfish and designing, and Quaekery and Folly go hand in hand to increase the misery they pretend they would alleviate.

The question of Cholera being a eontagious disease, has not been altogether free from this base principle. Long and expensive quarantines can only be kept up with a certain medical staff—and the interests of these *require* eontagion. To meet the faet, that few medical men have fallen victims to the disease, even when constantly employed in attending on the siek, it has been pretended they have an immunity from that very eircumstance. But of the many young medical offieers who arrive at the different presidencies of India fresh from England, and who are at once, and without any preparation, introduced to the hospitals where the disease is prevalent, has there been observed any mortality from this disease? I never heard of a single ease. Can a similar faet be cited in the ease of small-pox or the plague? The truth is, there are few diseases which have not some time or other been thought to be eontagious. Ophthalmia, fever, dysentery, ague—each in its turn has had this opprobrium fastened upon it. I shall not be astonished if *broken bones* be added to the list; for in medieine, as in religion, there is nothing so absurd but will be brought forward as true or miraeulous; and, having been so, will find everywhere, and among all classes, its dupes and diseiples. *Useful innovation* alone meets with opposition.

Let us not surrender our judgment to our terror. If facts favouring the notion of contagion do come before us, let us view them dispassionately, and without timidity. Let us examine them in all their bearings, but be cautious how we construe them either one way or other. An embargo upon trade betwixt town and town—the shutting up the gates of cities and of garrisons—are measures that cannot long be enforced without giving rise to many miseries, and these too of a nature much more painful than what in fancy we flee from ;—gloom, discontent, and penury, can cause diseases of a more disgusting kind than Cholera. Those who are most disposed to view the disease as contagious, are yet fain to seek other causes to account for its spreading. Contagion then does not explain it.

The best preventives of epidemic disease are serenity of mind, cleanliness, comfort in clothing, a happy moderation in the pleasure of the table,—in a word, a generous temperance,—avoidance of indigestible substances, heavy suppers, and generally, everything tending to irritate or debilitate the system—shut your ears also to rumours of the prevalence of the disorder. Daily bulletins and reports on the subject of the disease only keep up public alarm, and tend to make men selfishly alive to what God will take from them at his own due time—the existence which He gave.

POSTSCRIPT.

IT is now something like twenty years since the greater part of the matter of the above Essay first appeared in print;—yet nothing I have seen or read during that long period, has in the very least tended to make me alter or modify the opinions of my early experience. The *physiology* of the suffocative form of Cholera, I hold to be therein completely elucidated. As the reader has seen, it has primary reference to the Brain and Nervous System. Last in the number of fatal phenomena, is that immediate precursor of dissolution—the *death of the blood*,—though a recent writer of ability, Dr. Starr of Leamington, looks upon this as the *first* link in the chain of causation. Were such the fact, there could be no recovery. The disease in that case would be invariably fatal. Reason and analogy, then, are with me. To poisons, passions, and mechanical injury, which we know act primarily on the Brain, I have traced one and all of its signs and symptoms; while, by the *artificial* paralysis of the pneumo-gastric nerves of the dog, the reader may produce at will, first, the whole group of the dangerous or essential symptoms of

Cholera, in its worst form ; and, secondly, the identical state of blood on which Dr. Starr rests his ease ! The deterioration of the blood proeeeds *pari passu*, with the wrong primarily done to the Brain and Nerves. Moreover, it does not take place at all in eases of Cholera *mitior*,—those eases where the *pneumonic* portion of the pneumo-gastrie Nerves escapes the paralyzing influence of the original cause of attack.

With regard to the

TREATMENT OF CHOLERA :—

In addition to the remedies previously recommended, I would here suggest a trial of *chloroform* as an anaesthetic agent in the earlier stages, particularly when the eramps are painful and severe,—that agent having in my own hands given speedy relief to patients suffering from other spasmotic complaints, depending on a similar loss of nervous energy. Taken in the dose of a few drops by the stomach, chloroform would, in some few eases, of Sporadic Cholera, appear to have been successful when prescribed by others : but as this preparation, after all, is only one of many *æthereal* substances, I do not apprehend that its exhibition, in the latter form, will be found more extensively effective, than were the *nitrous* and *sulphuric* aethers when similarly employed during the epidemic attacks. In the outset of the disease they occasionally appeared to do good, but when given in the later stages, like opium and alcohol, they seemed

to me to hasten the stupor that preceedes death. *Hydrocyanic acid* I have already mentioned with favour ;—and here I would again beg to impress on the mind of my reader my very high opinion of its value, attention being at the same time paid to *time* and *temperature*. Let me also in this place suggest the cautious employment of *creosote*, *phosphorus* and *strychnia*,—those preparations, particularly the two last, having, in common with hydrocyanic acid, proved of essential service to me in various nervous affections, such as vomiting, difficult breathing, spasm, palsy, &c., affections which we find so often existing separately in the subjects of ordinary disease, but which in Cholera Asphyxia all enter into the aggregate of the symptoms that constitute that complaint. In this disease your patient must, if possible, be favourably influenced at once. Try to do so, while yet the *gastric* nerves retain their influence, however weak or partial, over the stomach; and do not quite despair of your ease, even where the stomach is completely paralyzed, for in numerous patients there would appear to be a natural tendency in the Brain to recover its lost influence over every nerve of the body, as is evident from the partial improvement which from time to time takes place in most cases, and the occasional perfect cure in some few where hope had been all but exhausted. Remember, that the danger of the disease depends on the STATE OF THE BREATHING. Let your principal aim, then, be the restoration of the brain's in-

fluencee over the *respiratory* nerves. In the earlier stages, the paralysis whieh takes place in these nerves is *intermittent*,—partially intermittent in some, in others, the intermission is complete. Now a knowledge of this fact is of great importance. Keeping it in mind you may, during the continuance of the paralysis, relieve the *suffocation* consequent on it, by inflating the lungs with *atmospheric* air, and thereby also give the Brain a better chance of regaining its lost energy over the whole nervous system. Spare your *opium* after the first stage. If a good result do not immediately follow its first employment, do not repeat the dose. In my experienec its repetition then only hastens the state of stupor whieh preeedes dissolution; and on no account praetise blood-letting here in any mode or manner. For myself, it is now more than seventeen years since I have resorted to this barbarous praetice in any disease whatever. As for *calomel*, *cayenne pepper*, *assafœtida*, &c., of which you constantly hear so much, waste not your time—in this disease so precious—with such puerile and inert medication. You have powerful resources in *hydrocyanic acid*, *phosphorus*, and *strychnia*; of all the remedial means in your possession, none can so rapidly influenee the whole human frame as these particular agents—agents which all, luckily for us, enter into the *pharmacœpœdia* of every civilized country. Still, such is the energy of their action, such the rapidity with which they can influenee the Brain and nervous system,

nobody but a physician perfectly conversant with their doses and possible effects, whether salutary or morbid, ought to be entrusted with their exhibition. No one who is ignorant of the *duplex* action of all medicinal substances, can possibly, but by hap-hazard, turn them to a good account in this or any other disease whatever; for in this very disease of Cholera, as in every disease to which our frail humanity is liable, the medicine that will produce a salutary influence in one individual will do precisely the reverse in another. In certain cases, this depends on the constitution of the individual, in certain others on *time* and *temperature*. Without a perfect acquaintance with these facts, how could you know when to continue and when to change any given medicinal force? There is no "red-tape-ism" in true medicine,—no *specific* that will always do the same thing in all persons and at all periods! Before I quit this part of the subject, I would again earnestly impress upon you, the necessity for inflating the lungs during the state of *Asphyxia*, with their proper pabulum—atmospheric air. Eschew *oxygen* here; the lungs were never made to inspire it undiluted.

With regard to the supposed *exciting cause* or causes of the Epidemic Cholera, I question if the bulk of the profession is one iota nearer the truth than it was when the pestilence first broke out; unless it be that in this country there are now fewer *terrorists*, fewer advocates of the doctrine of contagion, than there were some sixteen or seven-

teen years ago. With the great majority of well informed practitioners, I hold that

COHLEA IS NOT CONTAGIOUS.

When the disease first appeared epidemically in the 30th Foot in 1831, I was serving with that Regiment at Wallahjabad, in the East Indies. Nothing could equal the fatality—fourteen and fifteen deaths frequently in one night; yet for whole nights together did I, being then the medical officer in charge, feel it to be my duty to SLEEP,—if broken slumber could be called sleep,—within the hospital walls. Could place, time, or contiguity, be more favourable to test the doctrine of contagion? On every affected man, woman, or child, that lived or died, I gave my own personal attendance,—taking the deepest interest in the success or failure of my remedies, making also numerous *post mortem* examinations with my own hands,—yet neither myself nor any one of my numerous assistants in the hospital, ever suffered from a single symptom of the disease. This one fact, I give as a sample of the general experience I had of this epidemic while serving in India. The experience of the best observers in other quarters of the globe, has been precisely to the same effect. I extract the following from a letter I have just received from Captain Scott, commanding Her Majesty's ship *President*, when the Cholera appeared off Halifax, in North America:—"Upon the arrival of the *President* at " Halifax, in August 1834, some cases that oc-

" curred on shore awakened a suspieion that that
" plague—the Asiatic Cholera—was about to visit
" us. Nor were we kept long in suspense. The
" troops in the barracks were the first attacked,
" and a great many men died. On their retiring,
" however, from the town, to encamp some fifteen
" miles off, the disease ceased among them: no
" fresh case, so far as I remember, occurred. My
" ship lying close to the shore, I gave orders
" that in case the disease should show itsclf on
" board, the men seized should be at once sent
" to a temporary hospital, which I had in anticipa-
" tion, provided in the victualling yard. The first
" seaman assailed, was a main-top man, while doing
" his duty aloft in the top; and so sudden and
" severe was the seizure, he was obliged to be in-
" stantly *lowered down*. He was then put into the
" boat and taken with all expedition on shore to
" the hospital, where he died in less than five hours
" from the time he was attacked. The disease
" from that day beeame prevalent in the ship—
" the number of seizures inereasing gradually to
" eighteen and twelve men daily. I then, at the
" suggestion of my Admiral, Sir George Cockburn,
" ordered the moorings to be slipped, and the ship
" to be run up into Bedford Basin, where we
" anchored off Navy Island, a distance of three
" miles from the former anehorage. Just as we
" had made sail, a man was attaaked on the
" quarter-deek, and sent on shorc. This was the
" last case that oecurred on board. From the time

" of our moving, *not another case took place*. It
" appeared as if the cause of the disease occupied
" the *very spot we had quitted*, and a very con-
" tracted one it would appear to have been, for of
" three other ships of war anchored around and
" close to us, not one solitary case occurred among
" their crews." Were the disease contagious, do
you think that after having been in such close
contact with those affected, you could possibly
escape it by the mere removal of a few miles from
the place of the first attacks—the same thing taking
place both on shore and at sea !

A word or two as to what I myself saw of Cholera in this country, to which by the way, I returned only a few months before it broke out in 1832. I was at that epoch, quartered with my Regiment, the Royals, in Edinburgh Castle, and there, notwithstanding the *cordon sanitaire* that was strictly established by the military authorities of the place, a few cases of the disease—the identical disease, and no mistake,—occurred. The patients were all treated professionally by myself and assistants with perfect impunity to all of us. In the Cholera Hospital, established in Drummond Street, Edinburgh, I had also many opportunities of seeing the disease as it appeared there—some hundreds of patients having been treated for the complaint in that establishment. And what was the opinion of those connected with this civil hospital? Dr. Mackintosh, the presiding physician, scouted the idea of contagion. In a book which he afterwards

published, he gives a fact, which to me, even without my own experience would be conclusive :—“ In “ the Drummond Street Cholera Hospital, there “ were two hundred and eighty bodies examined. “ Two and sometimes three hours were spent in “ examining each body. The room where these “ examinations were conducted, was a miserable “ place, eight feet square ; generally six or eight “ persons were present—sometimes more ; and in “ an inner apartment, about ten feet square, there “ were generally six dead bodies. Not one of those “ who frequented this den of death, and who had “ their hands imbrued in the secretions of the dead “ for six hours out of the twenty-four, was affected “ with Cholera, although their hands were irritated “ and punctured daily.”—*Mackintosh's Practice of Physic*, p. 345. Yet in the teeth of these, and thousands of similar facts, did the College of Physicians of London, in 1832, terrify the people of England out of their senses, by *officially* declaring the disease to be CONTAGIOUS ! A better appreciation of medical evidence, has since led the “ Health “ of Towns' Commission” *officially* also to declare the reverse. The reader can choose between two such eminent authorities. One thing is certain, “ doctors differ !”

Among the various hypothetic causes of this terrible disease, an opinion has been expressed that Cholera Asphyxia is *animalcular* in its origin, though Dr. Cowdell, who has more recently handled the subject, takes some pains to persuade

us, that its cause is *vegetable* or *fungoid*. The facts I have just detailed, are a complete answer to the maintainers of *either* hypothesis. Where have you such *escapes* as those in any recognized *organic* contagion—in *itch*, or *ringworm* for example—diseases which we know, have, in one case an animalcular, and in the other a vegetable origin? No, reader! Cholera is neither propagated by *flies* nor *fungi*! The naturally rapid extension of a living *generating* principle, whether animal or vegetable, which could set up in man the series of phenomena you see in Cholera, would produce such a constant and uniform succession of results, no opposer of contagion could possibly shut his eyes to the connexion. Before the microscope discovered the *insect* of *itch*, and the *fungus* of *ringworm*, few or none doubted the communicability of these diseases by touch or contagion. Vain will be the effort by similar means to detect any thing analogous as the originating cause of a disease which can be produced, as I have already shown, like any other constitutional complaint, by poisons, passions, and mechanical injury even, which in fact,—during the prevailing epidemic influence, can be set up by any other cause of disease whatever. Look at the history of other epidemics—*erysipelas* or *yellow fever*, for example. When either of these *forms* of disease predominates in a given *locality*, exposure to wet, cold, or heat, a transient passion, or a mechanical injury, which, under other circumstances, would be of no importance, may at once give rise

to the predominantly *form* of disorder. Dysentery and diarrhoea manifest similar phenomena, being set up epidemically at a given place or period, by whatever would set up any other disease whatever in any other place.

I have a strong impression that the atmospherie or tellurie influenee, in any epidemic, whether erysipelas, dysentery, yellow fever, or Cholera, is *predisposing only*,—that that influenee merely *determines the form*, the more immediately exciting cause being one thing with one person, another thing with another. Take the ease of erysipelas for example. When I served with the Royals in Scotland, erysipelas predominated for a time in that Regiment. If a man was flogged, he was sure to get erysipelas. A blister almost always set it up: and I have known a mere serateh bring it on,—particularly the application of a laneet to the arm. The late King of Denmark died from the erysiploid inflammation of a vein; he died from the blood-letting practised on him when affected with the disease; and no medieval aet can be so fool-hardy as blood-letting in that *form* of fever, termed erysipelas or rose. I hold FEVER to be the TYPE of all diseases. Most assuredly it is the type of all epidemic disorders. The epidemic influenee, whether tellurie or atmospherie, whether local or general, would appear to determine the *form* simply. While in India, I had many opportunities of witnessing epidemic diseases, particularly cholera, dysentery, bilious remittent fever, and ophthalmia. When any

one of those disorders predominated in a place, you scarcely ever had an instance of any other acute complaint among the regiments stationed in that particular place at the same period. The *form* was almost invariably determined by the atmospheric or telluric influence at work. The immediate causes were infinite. Drunkenness bringing on the given *form* in one, exposure to the sun in a second, being out during the night air in a third; while an *extra* drill in heavy marching order, would produce numerous cases where this was ordered. When an epidemic prevailed, whatever the immediately exciting cause, the *form* of the disease of the place and period was uniform. Where Cholera prevailed, there was little or no dysentery; where dysentery, little or no Cholera; where bilious remitting fever was the predominant *form*, you had neither dysentery nor Cholera, or at most, an occasional case. Look nearer home at the *influenza*, you will find where it prevails the influenza absorbs all other complaints. When predominant, you will find a perfect paucity of all other *acute* disorders.

“The clearest and most striking general observation which occurs regarding the prevalence of the disease, (Cholera,) in different classes of people is, that the higher ranks of society have been found in India to suffer less than the lower; and this seems to hold good in all its branches, military as well as civil, native and European.”— “Thus we constantly find that the officer suffers less than the soldier or the sepoy; that the

" superior deseription of troops, as the cavalry,
" (who form the *elite* of the army,) suffer less than
" the infantry, and they again, greatly less than
" the hard-labouring and ill-fed camp-follower.
" So also is it as constantly found that the
" Bramin, the supreme or priest-caste, and the
" sleek Banian, (merehant,) suffer less than the
" ryot, who pays often as much as half the produce
" of his riee-fields for rent, and extorts from them
" a scanty subsistence, under a burning sun, and
" still more remarkably less than the poor out-
" east pariah, who carries a burden ten miles, and
" returns the next day empty handed for fivepenee
" sterling."—Orton on the Indian Cholera.—This
entirely accords with my own experience. The
proportional difference in the amount of attacks
among the various classes, depends in the differ-
ence of their *social* opportunities of obtaining com-
fort, regularity, cleanliness, good food, and rest ;
and the consequence of all these united,—a health-
ful energy of Brain and body sufficient to enable
their possessor to stand *firm* under the insalubrious
eireumstances that determine the epidemic in ques-
tion. Now, a knowledge of these facts is of the
greatest importance to us. From the *vital* nature
of the nerves, principally implicated in the Cholera
form of disease, that epidemic is necessarily a most
fatal one, as indeed is any disorder where the
breathing is seriously involved.

The true method to prevent attacks of Cholera
then is, to avoid all the immediately exciting

causes of all acute complaints whatever. Mental depression, dirt, drunkenness, defective nutrition and ventilation, imperfection of draining and light, (the window tax !) are assuredly exciting causes of general disease. When the Cholera first prevailed epidemically in England, who were its principal victims? Precisely those exposed to any of the above causes. The friends of the few who suffered among the higher ranks may, for the most part, thank the College of Physicians for the attacks that carried off their relatives; for to the terror inspired by the official declaration of those worthies, that the disease is contagious, I have no hesitation in ascribing the loss of many a valuable life. There is no cause of disease, as I have elsewhere shown,* so certain and powerful as this depressing passion.

One word, in conclusion, to the venerable College. Somewhere, about twenty years ago, I read the history of "THE GOLD HEADED CANE." There I learnt how that cane had been Radcliffe's, and how it had passed from one great doctor to another, till it came at last into the hands of Dr. Baillie, who made a gift of it to the College of Physicians. Relic of departed greatness, there it has remained ever since. Like the busts of Linacre and Harvey, it is preserved in Pall Mall East with a holy reverence, showing to all who enter the

* See Fallacies of the Faculty, with the Chrono-thermal System of Medicine. Simpkin and Marshall, Stationers Hall Court; and John Ollivier, Pall Mall.

College porch how highly, during their lives, these great men must have been esteemed by their fellows. Linaere, Harvey, Radcliffe, Jenner—these are the names that can never die within its walls. You see how the College worships science—how it honours scientific men. Such were the reflections of my earlier years; I had rather an exalted opinion of the College then! Without its fostering care what, I asked, would become of science and scientific men? Not one word had I then heard of the College being a mere doctor's shop—a club—a coterie—a clique of small creatures who had always, where they could, obstructed science. I knew nothing of the College persecutions,—how in his lifetime Harvey was treated by it as a quack, and how Radcliffe was called a quack too, and how it had refused Jenner its license to practice physic in London. Not one word had I then heard of all that. Out it came at last, however, that no man had ever made a great scientific discovery had not lived to repent it. Eternally prating of the advancement of science, the only thought of the people of the College of Physicians was how to advance themselves. Science!—What cared they for science? As a *cry*, science answered their purpose; but as for Harvey, Hunter, Jenner, &c., science, according to their own confessions, had nearly been the ruin of one and all of them. And who were the opponents of those truly great men? Not the magnates of the College of Physicians at least—not the *censors* or great officials, who stand

out so prominently from this body of imbeciles. No ! Such persons would be ashamed to attack the true promoters of science—to call them quacks —to whisper away their lives in private and before Committees of the House of Commons—slander them, and say they had no diplomas. College of Physicians ! put your house in order !

